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STRUCTURE FILE UPDATES: 2 AUG 2010 HIGHEST RN 1234615-55-4
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L4	1	SEA FILE=REGISTRY SPE=ON	ABB=ON	PLU=ON	"TRICALCIUM PHOSPHATE"/CN
L5	1	SEA FILE=REGISTRY SPE=ON	ABB=ON	PLU=ON	"CALCIUM OXIDE"/CN
L6	1	SEA FILE=REGISTRY SPE=ON	ABB=ON	PLU=ON	1314-56-3/RN
L7	12734	SEA FILE=HCAPLUS SPE=ON	ABB=ON	PLU=ON	L4
L8		QUE SPE=ON ABB=ON PLU=ON	TRICALCIUM PHOSPHAT?	OR TRI CALCIUMPHOSPHAT?	
L9	76012	SEA FILE=HCAPLUS SPE=ON	ABB=ON	PLU=ON	L5
L10		QUE SPE=ON ABB=ON PLU=ON	CALCIUM OXID?	OR CALCIUMOXID ? OR CAO	
L11	25753	SEA FILE=HCAPLUS SPE=ON	ABB=ON	PLU=ON	L6
L12		QUE SPE=ON ABB=ON PLU=ON	PHOSPHOROUS PENTOXID?	OR PHO SPHOROUSPENTOXID?	OR PHOSPHORIC PENTOXID?
			OR PHOSPHORIC PENTOXID?	OR PHOSPHORUS PENTAOXID?	OR PHOSPHORUS PENTAOXID ? OR P2O5
L13	230	SEA FILE=HCAPLUS SPE=ON	ABB=ON	PLU=ON	L7 AND L9 AND L11
L14	1129	SEA FILE=HCAPLUS SPE=ON	ABB=ON	PLU=ON	L4/P
L15	28	SEA FILE=HCAPLUS SPE=ON	ABB=ON	PLU=ON	L14 AND L13
L16	15	SEA FILE=HCAPLUS SPE=ON	ABB=ON	PLU=ON	L15 AND PHARM?/SC, SX
L17	142	SEA FILE=HCAPLUS SPE=ON	ABB=ON	PLU=ON	L13 AND PHARM?/SC, SX
L18		QUE SPE=ON ABB=ON PLU=ON	BIOMATERIAL?	OR ORTHOPEDIC? OR DENTAL?	OR BONE REPLACE?
			OR SPINAL REPAIR?	OR COSMETIC ? OR SURGERY?	OR BONE REMODEL?
L19	39	SEA FILE=HCAPLUS SPE=ON	ABB=ON	PLU=ON	L17 AND L18
L20	320	SEA FILE=HCAPLUS SPE=ON	ABB=ON	PLU=ON	L7(5A) (POROS? OR POROUS?)
L21	1	SEA FILE=HCAPLUS SPE=ON	ABB=ON	PLU=ON	L20 AND NET(A) SHAP ?

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L23      280 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L20 AND PHARM?/SC,
          SX
L24      2 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L23 AND L9 AND
          L11
L25      53 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L16 OR L19 OR L21
          OR L24
L26      33 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L25 AND (1840-2003
          )/PRY,AY,PY
L27      224 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L8 AND L10 AND
          L12
L28      129 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L27 AND PHARM?/SC,
          SX
L29      39 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L28 AND L18
L30      26 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L29 AND (1840-2003
          )/PRY,AY,PY
L31      5 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L30 AND (POROS?
          OR POROUS?)
L32      0 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L30 AND NET(A)SHAP
          ?
L33      QUE SPE=ON  ABB=ON  PLU=ON  FORM? OR MOLD? OR MOULD? OR
          SHAP? OR EXTRUD?
L34      11 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L30 AND L33
L35      14 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L31 OR L32 OR L34
L36      40 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L26 OR L35

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=> fil hcap

FILE 'HCAPLUS' ENTERED AT 08:56:11 ON 03 AUG 2010

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FILE COVERS 1907 - 3 Aug 2010 VOL 153 ISS 6

FILE LAST UPDATED: 2 Aug 2010 (20100802/ED)

REVISED CLASS FIELDS (/NCL) LAST RELOADED: Jun 2010

USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Jun 2010

HCAPLUS now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2010.

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This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d l36 1-40 ibib ed abs hitstr hitind

L36 ANSWER 1 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2007:44501 HCAPLUS Full-text
 DOCUMENT NUMBER: 146:87660
 TITLE: Calcium phosphates modified with iron
 INVENTOR(S): Fernandez Aguado, Enrique
 PATENT ASSIGNEE(S): Universitat Politècnica de Catalunya, Spain
 SOURCE: Span., 13pp.
 CODEN: SPXXAD
 DOCUMENT TYPE: Patent
 LANGUAGE: Spanish
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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ES 2257131	A1	20060716	ES 2003-2342	20031001
			<--	
ES 2257131	B1	20070701		
PRIORITY APPLN. INFO.:			ES 2003-2342	20031001
			<--	

ED Entered STN: 16 Jan 2007

AB An invention involving ceramic materials within the ternary system CaO-P2O3-FeO that have the capability of working as a cement when combining the powder phase formed by one or various of these reagents with an aqueous liquid phase. The new reagent have magnetic properties. A cement formed from them maintain their magnetic responses during it's use and behaves as a ferric fluid. The new materials may be used in dental applications and in the treatment of certain cancers and in the biomaterial field, in general.

IT 1305-78-8, Calcium oxide, biological studies
 1314-56-3, Phosphorus pentoxide, biological studies
 7758-87-4, α -Tricalcium phosphate
 (calcium phosphates modified with iron to be used in biomaterials)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS

CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IPCI A61L0027-00 [I,C]; A61L0027-12 [I,A]; A61L0027-00 [I,C]; A61L0027-12 [I,A]

IPCR A61L0027-00 [I,C]; A61L0027-12 [I,A]

CC 63-7 (Pharmaceuticals)

ST calcium phosphate iron biomaterial

IT Antitumor agents

Ferromagnetic materials

Glass ceramics

Prosthetic materials and Prosthetics

(calcium phosphates modified with iron to be used in biomaterials)

IT Dental materials and appliances

(cements; calcium phosphates modified with iron to be used in biomaterials)

IT 1305-78-8, Calcium oxide, biological studies 1309-37-1,

Iron oxide (Fe₂O₃), biological studies 1314-56-3,

Phosphorus pentoxide, biological studies 1345-25-1, Iron oxide

(FeO), biological studies 2338-05-8, Iron citrate

7758-87-4, α -Tricalcium phosphate

(calcium phosphates modified with iron to be used in biomaterials)

L36 ANSWER 2 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2003:665201 HCAPLUS Full-text

DOCUMENT NUMBER: 140:31373

TITLE: Long-term stable biomaterials based on

apatite and calcium zirconium orthophosphate

AUTHOR(S): Berger, Georg; Ploska, Ute

CORPORATE SOURCE: Federal Institute for Materials and Testing,
Berlin, D-12200, Germany

SOURCE: Key Engineering Materials (2003),

240-242(Bioceramics), 607-610

CODEN: KEMAEY; ISSN: 1013-9826

PUBLISHER: Trans Tech Publications Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 26 Aug 2003

AB This paper reports methods related to the synthesis of bioceramics containing apatite and calcium zirconium orthophosphate as main crystalline phases. The phases were identified by XRD. The chemical stability of these materials was determined by treating crushed samples with 0.2 M TRIS-HCl buffer solution at a temperature of 37°C for 120 h and measuring of the ions leached out by the ICP-OES method. The solubility of the synthesized materials is lower than that of hydroxyapatite especially for decreasing pH values.

IT 1305-78-8, Calcium oxide (CaO), biological studies

1314-56-3, Phosphorus oxide (P₂O₅), biological studies

7758-87-4, β -Tricalcium phosphate

(long-term stable biomaterials based on apatite and

calcium zirconium orthophosphate)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (CA INDEX NAME)

RN 1314-56-3 HCAPLUS
 CN Phosphorus oxide (P2O5) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 7758-87-4 HCAPLUS
 CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

CC 63-7 (Pharmaceuticals)
 IT Prosthetic materials and Prosthetics
 (ceramic, implants; long-term stable biomaterials based
 on apatite and calcium zirconium orthophosphate)
 IT Leaching
 Solubility
 pH
 (long-term stable biomaterials based on apatite and
 calcium zirconium orthophosphate)
 IT Ceramics
 (prosthetic implants; long-term stable biomaterials based
 on apatite and calcium zirconium orthophosphate)
 IT 471-34-1, Calcium carbonate CaCO₃, biological studies
 1305-78-8, Calcium oxide (CaO), biological studies
 1306-06-5, Apatite 1314-23-4, Zirconium oxide, biological studies
 1314-56-3, Phosphorus oxide (P2O5), biological studies
 7664-38-2, Phosphoric acid, biological studies 7757-93-9, Calcium
 hydrogen phosphate (CaHPO₄) 7758-87-4, β-Tricalcium
 phosphate 7789-75-5, Calcium fluoride, biological studies
 15406-63-0, Calcium zirconium phosphate
 (long-term stable biomaterials based on apatite and
 calcium zirconium orthophosphate)
 OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS
 RECORD (5 CITINGS)
 REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT
 L36 ANSWER 3 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2003:445275 HCAPLUS [Full-text](#)
 DOCUMENT NUMBER: 140:19728
 TITLE: Animal experiments with biomaterials for
 direct bone contact displaying higher or lower
 solubility in comparison to TCP and HA products
 AUTHOR(S): Gross, Ulrich; Mueller-Mai, Christian; Knabe,
 Christine; Berger, Georg; Ploska, Ute; Gildenhaar,
 Renate
 CORPORATE SOURCE: Institute of Pathology, Klinikum B. Franklin, Free
 University of Berlin, Berlin, D 12200, Germany
 SOURCE: Advances in Science and Technology (Faenza, Italy)

(2003), 41(Materials in Clinical
Applications VI), 369-376
CODEN: ASET5

PUBLISHER: Techna
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 11 Jun 2003

AB State of the art of the so-called bioactive bone substitution materials are tricalcium phosphate ceramics as resorbable compound as well as hydroxyapatite as a long-term stable compound. The investigations comprise in vitro solubility tests and animal expts. for 1. a higher resorbable ceramics based on calcium potassium sodium phosphate $[\text{Ca}_2\text{KNa}(\text{PO}_4)_2]$ as main crystalline phase. Materials of this type are meltable and crystallize spontaneously—even when quenched rapidly. 2. A high long-term stable ceramics based on calcium titanium phosphate $[\text{CaTi}_4(\text{PO}_4)_6]$. This material is only available as a sinter product without melting. Probes of the materials were implanted in the femur of Chinchilla rabbits. The tissue response after 7, 28 and 84 days post operation showed dissoln., resorption, bone substitution and bone bonding indicating that the in vitro solubility of the materials was the most important parameter for the host response.

IT 7758-87-4, TCP
(animal expts. with biomaterials for direct bone contact displaying higher or lower solubility in comparison to TCP and HA products)

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IT 1305-78-8, Calcium oxide, biological studies
1314-56-3, Phosphorus oxide (P2O5), biological studies
(animal expts. with biomaterials for direct bone contact displaying higher or lower solubility in comparison to TCP and HA products)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (CA INDEX NAME)



RN 1314-56-3 HCAPLUS

CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 63-7 (Pharmaceuticals)

IT Solubility
(animal expts. with biomaterials for direct bone contact)

displaying higher or lower solubility in comparison to TCP and HA products)

IT Bone
(artificial; animal expts. with biomaterials for direct bone contact displaying higher or lower solubility in comparison to TCP and HA products)

IT Prosthetic materials and Prosthetics
(ceramic, implants; animal expts. with biomaterials for direct bone contact displaying higher or lower solubility in comparison to TCP and HA products)

IT Ceramics
(prosthetic implants; animal expts. with biomaterials for direct bone contact displaying higher or lower solubility in comparison to TCP and HA products)

IT 7758-87-4, TCP 84315-70-8, Calcium titanium phosphate
[CaTi4(PO4)6] 131862-42-5, Calcium potassium sodium phosphate
[Ca2KNa(PO4)2] 136626-18-1, Osprovit
(animal expts. with biomaterials for direct bone contact displaying higher or lower solubility in comparison to TCP and HA products)

IT 1305-78-8, Calcium oxide, biological studies 1309-48-4, Magnesium oxide (MgO), biological studies 1313-59-3, Sodium oxide (Na2O), biological studies 1314-56-3, Phosphorus oxide (P2O5), biological studies 12136-45-7, Potassium oxide (K2O), biological studies 13463-67-7, Titania, biological studies (animal expts. with biomaterials for direct bone contact displaying higher or lower solubility in comparison to TCP and HA products)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 4 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2003:344425 HCAPLUS Full-text
 DOCUMENT NUMBER: 138:326647
 TITLE: Manufacture of high-strength sintered calcium phosphates with good fixability
 INVENTOR(S): Mizutani, Yoichiro; Okura, Tsunetoshi; Hattori, Masaaki
 PATENT ASSIGNEE(S): NGK Spark Plug Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	---	-----	-----	-----
JP 2003126239	A	20030507	JP 2001-329627	20011026
			<--	
PRIORITY APPLN. INFO.:			JP 2001-329627	20011026
			<--	

ED Entered STN: 07 May 2003

AB Ca phosphate-based powders containing Mg, Zn, Ba, and/or Sr are mixed with frits comprising oxides and P compds., and the mixts. are shaped and fired to give sintered bodies mainly comprising Ca3(PO4)2 and apatite, useful as substitutes for bone and teeth. A 95:5 (by weight) mixture of hydroxyapatite powder (Mg content 0.18 weight%) and frits (containing CaO 50, P2O5 45, BaO 3, and Al2O3 2 mol%) was pressed and subjected to cold isostatic pressing, and

the resulting columnar body was sintered at 1300° for 5 h to give a sintered body (flexural strength 162 MPa) comprising 73 weight% hydroxyapatite and 27 weight% Ca₃(PO₄)₂. Strong phys. bonds were observed at the interface between the sintered body and the mandibular bone of a monkey 6 mo after implantation.

IT 1305-78-8, Calcium oxide, biological studies 1314-56-3, Phosphorus oxide, biological studies (frits containing; manufacture of high-strength sintered calcium phosphates with good fixability for artificial bone and teeth)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (CA INDEX NAME)



RN 1314-56-3 HCAPLUS

CN Phosphorus oxide (P₂O₅) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 7758-87-4, Tricalcium phosphate (manufacture of high-strength sintered calcium phosphates with good fixability for artificial bone and teeth)

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IPCI A61L0027-00 [ICM,7]; C04B0035-447 [ICS,7]; C04B0035-01 [ICS,7,C*]

IPCR A61L0027-00 [I,C*]; A61L0027-00 [I,A]; C04B0035-01 [I,C*];

C04B0035-447 [I,A]

CC 63-7 (Pharmaceuticals)

Section cross-reference(s): 57

IT Molding of ceramics

(cold isostatic pressing; manufacture of high-strength sintered calcium phosphates with good fixability for artificial bone and teeth)

IT Dental materials and appliances

(dentures; manufacture of high-strength sintered calcium phosphates with good fixability for artificial bone and teeth)

IT 1304-28-5, Barium oxide, biological studies 1305-78-8, Calcium oxide, biological studies 1313-59-3, Sodium oxide, biological studies 1314-13-2, Zinc oxide, biological studies 1314-56-3, Phosphorus oxide, biological studies 1344-28-1, Alumina, biological studies 7631-86-9, Silica, biological studies 12136-45-7, Potassium oxide, biological studies (frits containing; manufacture of high-strength sintered calcium phosphates with good fixability for artificial bone and teeth)

IT 1306-01-0, Tetracalcium phosphate 1306-06-5, Hydroxyapatite 7757-93-9, Calcium hydrogen phosphate 7758-87-4,

Tricalcium phosphate 7778-77-0, Potassium
dihydrogen phosphate
(manufacture of high-strength sintered calcium phosphates with good
fixability for artificial bone and teeth)

L36 ANSWER 5 OF 40 HCAPLUS COPYRIGHT 2010 ACS ON STN
ACCESSION NUMBER: 2003:276292 HCAPLUS [Full-text](#)
DOCUMENT NUMBER: 139:25198
TITLE: Machinable calcium phosphate ceramics
AUTHOR(S): Kasuga, Toshihiro; Nogami, Masayuki
CORPORATE SOURCE: Department of Materials Science and Engineering,
Nagoya Institute of Technology, Gokiso-cho,
Showa-ku, Nagoya, 466-8555, Japan
SOURCE: Phosphorus Research Bulletin (2002), 13,
153-158
CODEN: PREBE7; ISSN: 0918-4783
PUBLISHER: Japanese Association of Inorganic Phosphorus
Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 10 Apr 2003
AB SiO₂-free calcium phosphate ceramics with easy machinability were prepared by
crystallization of the glasses in the CaO-P₂O₅-TiO₂-Na₂O system. β-Ca₂P₂O₇-
and β-Ca₃(PO₄)₂-containing glass-ceramic, prepared by sintering 60CaO-30P₂O₅-
3TiO₂-7Na₂O (mol%) glass powder compacts at 850°C, showed good machinability,
as confirmed by a drilling test using a conventional carbide tool. SEM
observation of the glass-ceramic showed that β-Ca₂P₂O₇ crystals, having a
layered morphol., interlock one another; plate-like crystals of several tens
of nanometers in thickness are piled up. The easy machinability of the glass-
ceramics was suggested to result from the cleavage of β-Ca₂P₂O₇ crystals
precipitated in the glass. Volume-crystallization of a glass of composition
43CaO-30P₂O₅-25TiO₂-2Na₂O glass resulted in a glass-ceramic containing β-
Ca₂P₂O₇ and (Ca_{0.5}Na)Ti₂(PO₄)₃ crystals. This glass-ceramic could also be
drilled using a conventional carbide tool. These glass-ceramic have relatively
high bending strength (.apprx.120 MPa).
IT 1305-78-8P, Calcia, preparation 1314-56-3P,
Phosphorus oxide (P₂O₅), preparation
(glass-ceramics, CaO-P₂O₅-TiO₂-Na₂O system; powder sintering
preparation, properties and machinability of calcium phosphate
glass-ceramics as candidate biomedical materials)
RN 1305-78-8 HCAPLUS
CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS
CN Phosphorus oxide (P₂O₅) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 7758-87-4P, Phosphoric acid, calcium salt (2:3)
(β-, glass-ceramics; powder sintering preparation, properties and
machinability of calcium phosphate glass-ceramics as candidate
biomedical materials)
RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

CC 57-1 (Ceramics)
 Section cross-reference(s): 63
 IT Dental materials and appliances
 (implants, calcium phosphate glass-ceramic; powder sintering preparation, properties and machinability of calcium phosphate glass-ceramics as candidate biomedical materials)
 IT 1305-78-8P, Calcia, preparation 1313-59-3P, Sodium oxide, preparation 1314-56-3P, Phosphorus oxide (P2O5), preparation 7631-86-9P, Silica, preparation 13463-67-7P, Titanium oxide (TiO2), preparation (glass-ceramics, CaO-P2O5-TiO2-Na2O system; powder sintering preparation, properties and machinability of calcium phosphate glass-ceramics as candidate biomedical materials)
 IT 7758-87-4P, Phosphoric acid, calcium salt (2:3) 7790-76-3P, Diphosphoric acid, calcium salt (1:2) (β-, glass-ceramics; powder sintering preparation, properties and machinability of calcium phosphate glass-ceramics as candidate biomedical materials)
 OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)
 REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 6 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2003:213446 HCAPLUS [Full-text](#)
 DOCUMENT NUMBER: 139:341602
 TITLE: Preparation and osteocompatibility of hydroxyapatite coated on titanium from the reaction of sputtered CaO and vaporized P2O5
 AUTHOR(S): Ozeki, K.; Yuhta, T.; Aoki, H.; Fukui, Y.
 CORPORATE SOURCE: Graduate school of Science and Engineering, Applied Systems Engineering, Tokyo Denki University, Saitama, 350-0394, Japan
 SOURCE: Bio-Medical Materials and Engineering (2003), 13(1), 83-90
 CODEN: BMENEO; ISSN: 0959-2989
 PUBLISHER: IOS Press
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 19 Mar 2003
 AB Hydroxyapatite (HA) and other calcium phosphates were synthesized on titanium plates by a solid-gas state reaction of sputtered CaO and vaporized P2O5. The calcium phosphates formed were HA, β-tricalcium phosphate (β-TCP; Ca3(P04)2), β-calcium pyrophosphate (β-PYR; Ca2P2O7), and β-calcium metaphosphate (β-MET; Ca2(P03)2). Their formation depended on the ratio of the sputtered CaO and the reacting P2O5. For a mole ratio of CaO/P2O5=4 (Ca/P=2), an HA film was

synthesized. The surface roughness increased by over 7 times after the solid-gas state reaction from $R_a = 0.16 \pm 0.02 \mu\text{m}$ (for the CaO film) to $R_a = 1.15 \pm 0.25 \mu\text{m}$ (for the reacted film). The synthesized HA film-coated titanium plates and control non-coated titanium plates were implanted in the femora of 2 dogs for a period of 2, 4 and 12 wk, and observed using a soft x-ray radiograph and histol. sections. New bone formation was observed without any connective tissue at 4 wk around the HA film, whereas over the 12 wk exptl. period, there was no new bone formation around the control and connective tissue was observed over all periods, reaching a thickness of more than 200 μm at 12 wk.

IT 1305-78-8, Calcium oxide, reactions 1314-56-3,
Phosphorus oxide (P2O5), reactions
(preparation and osteocompatibility of hydroxyapatite coated on Ti from
reaction of sputtered CaO and vaporized P2O5)
RN 1305-78-8 HCAPLUS
CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS
CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 7758-87-4P, β -Tricalcium phosphate
(preparation and osteocompatibility of hydroxyapatite coated on Ti from
reaction of sputtered CaO and vaporized P2O5)
RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

CC 63-7 (Pharmaceuticals)
IT 1305-78-8, Calcium oxide, reactions 1314-56-3,
Phosphorus oxide (P2O5), reactions
(preparation and osteocompatibility of hydroxyapatite coated on Ti from
reaction of sputtered CaO and vaporized P2O5)
IT 7758-87-4P, β -Tricalcium phosphate 10086-45-0P,
Calcium pyrophosphate 53801-86-8P, Calcium metaphosphate
(preparation and osteocompatibility of hydroxyapatite coated on Ti from
reaction of sputtered CaO and vaporized P2O5)
REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L36 ANSWER 7 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2003:160554 HCAPLUS Full-text
DOCUMENT NUMBER: 138:193335

TITLE: Hydroxyapatite-coated bioimplant materials and their manufacture
 INVENTOR(S): Okada, Koji; Okura, Tsunetoshi; Otsuka, Hiromi; Hattori, Masaaki
 PATENT ASSIGNEE(S): NGK Spark Plug Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003062061	A	20030304	JP 2001-252073	20010822
			<--	
PRIORITY APPLN. INFO.:			JP 2001-252073	20010822
			<--	

ED Entered STN: 04 Mar 2003

AB Granules (size 10-800 μm) prepared from powders (average particle size $\leq 5 \mu\text{m}$) are mixed with combustible particles (size 2-1600 μm), the mixts. are shaped under pressure where the granules do not disintegrate, fired, the resulting porous bodies are immersed in solns. containing components capable of precipitating hydroxyapatite (HA) crystals, taken out from the solns., and dried to give bioimplant materials having coating films of HA [having half width (Ba) of the (002) x-ray diffraction peak of $\geq 0.17^\circ$], which enhances bone regeneration, formed at least partially on their surfaces. A mixture of HA powder (average particle size 0.6 μm) and 5 weight% Ca phosphate-based glass frits was slurried, granulated by spray-drying, the resulting granules (average size 200 μm) (75 weight%) were mixed with 25 weight% acrylic resin particles (size 200 μm), the mixture was press-formed, fired, the resulting porous bodies having surface crystal phases of $\text{Ca}_3(\text{PO}_4)_2$ and HA were immersed in an aqueous solution (pH 7.4) containing Na^+ , K^+ , Ca^{2+} , Mg^{2+} , Cl^- , HCO_3^- , HPO_4^{2-} , and SO_4^{2-} , taken out from the solution, and dried to form HA coating films.

IT 1305-78-8, Calcium oxide, biological studies
 1314-56-3, Phosphorus oxide, biological studies
 (calcium phosphate glass frits; manufacture of hydroxyapatite-coated porous materials for bone implants)
 RN 1305-78-8 HCAPLUS
 CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS
 CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 7758-87-4P, Tricalcium phosphate
 (manufacture of hydroxyapatite-coated porous materials for bone implants)

RN 7758-87-4 HCAPLUS
 CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IPCI A61L0027-00 [ICM,7]; A61L0027-00 [ICS,7]; A61C0008-00 [ICS,7];
 A61K0006-033 [ICS,7]; A61K0006-02 [ICS,7,C*]
 IPCR A61C0008-00 [I,C*]; A61C0008-00 [I,A]; A61K0006-02 [I,C*];
 A61K0006-033 [I,A]; A61L0027-00 [I,C*]; A61L0027-00 [I,A]
 CC 63-7 (Pharmaceuticals)
 Section cross-reference(s): 57
 IT 1305-78-8, Calcium oxide, biological studies
 1314-56-3, Phosphorus oxide, biological studies
 (calcium phosphate glass frits; manufacture of hydroxyapatite-coated
 porous materials for bone implants)
 IT 1306-06-5P, Hydroxyapatite 7758-87-4P, Tricalcium
 phosphate
 (manufacture of hydroxyapatite-coated porous materials for bone
 implants)

L36 ANSWER 8 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2001:604454 HCAPLUS [Full-text](#)
 DOCUMENT NUMBER: 135:292564
 TITLE: New calcium phosphate glass-ceramics prepared by
 crystallization and sintering of glass powders
 AUTHOR(S): Kasuga, Toshihiro; Abe, Yoshihiro
 CORPORATE SOURCE: Department of Materials Science and Engineering,
 Nagoya Institute of Technology, Gokiso-cho,
 Showa-ku. Nagoya, 466-8555, Japan
 SOURCE: Proceedings of International Congress on Glass,
 18th, San Francisco, CA, United States, July 5-10,
 1998 (1998), 3039-3044. Editor(s):
 Choudhary, Manoj K. American Ceramic Society:
 Westerville, Ohio.
 CODEN: 69BQGS
 DOCUMENT TYPE: Conference; (computer optical disk)
 LANGUAGE: English

ED Entered STN: 22 Aug 2001
 AB Silica-free calcium phosphate glasses in the pyrophosphate region were
 obtained by introducing small amts. of Na₂O and TiO₂. The glasses with high
 CaO content of ≥55 mol% were found to contain the pyrophosphate and
 orthophosphate groups without the metaphosphate one by measurements of Raman
 and NMR spectra. By heating at 850°C, bioactive crystalline phases such as β-
 Ca₃(PO₄)₂ and β-Ca₂P₂O₇ were precipitated in the glasses. Some of the glasses
 can be sintered well at the temperature, resulting in fabrication of glass-
 ceramics containing large amts. of the bioactive phases. The glass-ceramics
 show relatively high fracture toughness of KIC ≈ 2 MPa·m^{0.5}.
 IT 7758-87-4P, Phosphoric acid, calcium salt (2:3)
 (crystallization phase; properties of calcium phosphate glass-ceramics
 prepared by crystallization and sintering of glass powders)
 RN 7758-87-4 HCAPLUS
 CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IT 1305-78-8, Calcium oxide (CaO), processes
 1314-56-3, Phosphorus oxide (P2O5), processes
 (glass-ceramics, calcium phosphate bioactive; properties of calcium
 phosphate glass-ceramics prepared by crystallization and sintering of glass
 powders)
 RN 1305-78-8 HCAPLUS
 CN Calcium oxide (CaO) (CA INDEX NAME)

Ca—O

RN 1314-56-3 HCAPLUS
 CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 57-1 (Ceramics)

Section cross-reference(s): 63

IT 7758-87-4P, Phosphoric acid, calcium salt (2:3)
 7790-76-3P, Diphosphoric acid, calcium salt (1:2)
 (crystallization phase; properties of calcium phosphate glass-ceramics
 prepared by crystallization and sintering of glass powders)
 IT 1305-78-8, Calcium oxide (CaO), processes
 1314-56-3, Phosphorus oxide (P2O5), processes
 (glass-ceramics, calcium phosphate bioactive; properties of calcium
 phosphate glass-ceramics prepared by crystallization and sintering of glass
 powders)
 OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS
 RECORD (1 CITINGS)
 REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L36 ANSWER 9 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2001:573916 HCAPLUS Full-text

DOCUMENT NUMBER: 136:252430

TITLE: Glass reinforced hydroxyapatite for hard tissue
 surgery-Part II: in vitro evaluation of
 bone cell growth and function

AUTHOR(S): Salih, V.; Georgiou, G.; Knowles, J. C.; Olsen, I.

CORPORATE SOURCE: Department of Biomaterials, Eastman Dental
 Institute, University College London, London, WC1X
 8LD, UK

SOURCE: Biomaterials (2001), 22(20), 2817-2824

CODEN: BIMADU; ISSN: 0142-9612

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 08 Aug 2001

AB Hydroxyapatite (HA)-based materials are considered to be potentially useful as bone implant materials, particularly those reinforced with glass to improve mech. strength. However, the precise effects of glass-reinforced HA on the growth and functions of bone cells are still unclear. The present study has therefore examined the response of human osteoblast-like cells to HA and HA reinforced with two different proportions of glass, namely 2.5% and 5%. All materials enabled the cells to attach and proliferate during 7 days in culture and, although the growth was less than on control plastic surfaces, there was no deleterious effect of the 5% glass composite compared with HA alone. Flow cytometry anal. showed that there was no effect on cell size and granularity, but there were marked and highly selective changes in the expression of certain connective tissue proteins. Thus, while bone sialoprotein and osteonectin were down-regulated on HA alone, the expression of these antigens was relatively enhanced on the composite materials, and collagen type I was also up-regulated on the glass-reinforced HA. Thus, modulation of the glass composition of HA materials could be used to produce not only improved mech. strength, but also enhanced biocompatibility.

IT 7758-87-4, Tricalcium phosphate

(glass reinforced hydroxyapatite for hard tissue surgery)

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IT 1305-78-8, Calcium oxide (CaO), biological studies

1314-56-3, Phosphorus oxide (P2O5), biological studies

(glass reinforced hydroxyapatite for hard tissue surgery)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (CA INDEX NAME)



RN 1314-56-3 HCAPLUS

CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 63-7 (Pharmaceuticals)

IT Cell proliferation

Osteoblast

(bone cell growth in glass reinforced hydroxyapatite for hard tissue surgery)

IT Prosthetic materials and Prosthetics

(glass ceramics; glass reinforced hydroxyapatite for hard tissue surgery)

IT Biocompatibility
(glass reinforced hydroxyapatite for hard tissue surgery)

IT Bone sialoglycoproteins
Osteonectin
Osteopontin
(glass reinforced hydroxyapatite for hard tissue surgery)

IT Glass ceramics
(prosthetic; glass reinforced hydroxyapatite for hard tissue surgery)

IT Collagens, biological studies
(type I; glass reinforced hydroxyapatite for hard tissue surgery)

IT 7758-87-4, Tricalcium phosphate
(glass reinforced hydroxyapatite for hard tissue surgery)

IT 1305-78-9, Calcium oxide (CaO), biological studies
1306-06-5, Hydroxyapatite 1313-59-3, Sodium oxide (Na2O), biological studies
1314-56-3, Phosphorus oxide (P2O5), biological studies
(glass reinforced hydroxyapatite for hard tissue surgery)

OS.CITING REF COUNT: 22 THERE ARE 22 CAPLUS RECORDS THAT CITE THIS RECORD (22 CITINGS)

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 10 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2001:573915 HCAPLUS Full-text

DOCUMENT NUMBER: 136:252429

TITLE: Glass reinforced hydroxyapatite for hard tissue surgery-Part 1: mechanical properties

AUTHOR(S): Georgiou, G.; Knowles, J. C.

CORPORATE SOURCE: Department of Biomaterials, Eastman Dental Institute, University College London, London, WC1X 8LD, UK

SOURCE: Biomaterials (2001), 22(20), 2811-2815
CODEN: BIMADU; ISSN: 0142-9612

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 08 Aug 2001

AB Com. hydroxyapatite (HA) was reinforced by adding 2.5 and 5% of a Na2O-CaO-P2O5 glass and then sintered. The resulting composites have chemical compns. that are similar to the inorg. constituent of the mineral part of bone, and are closely related to the trace elements that are present, in this case Na. X-ray diffraction showed no decomposition of HA to secondary phases; however, the glass reinforced-HA composites contained a HA phase and variable amts. of tricalcium phosphate phase, depending on the sintering temperature and the amount of glass added. The HA-composite material exhibited higher flexural strength overall compared to sintered HA. The presence of secondary phases β - and α - tricalcium phosphate in the microstructure of the composites has a major influence on the mech. properties. Addnl., the presence of porosity also has a bearing on the mech. properties of the material.

IT 7758-87-4, Tricalcium phosphate
(glass reinforced hydroxyapatite for hard tissue surgery)

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IT 1305-78-8, Calcium oxide (CaO
) , biological studies 1314-56-3, Phosphorus oxide (P2O5), biological studies
(glass reinforced hydroxyapatite for hard tissue surgery)
RN 1305-78-8 HCAPLUS
CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS
CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 63-7 (Pharmaceuticals)

Section cross-reference(s): 57

IT Prosthetic materials and Prosthetics
(glass ceramics; glass reinforced hydroxyapatite for hard tissue surgery)

IT Bending strength
Sintering
(glass reinforced hydroxyapatite for hard tissue surgery)

IT Glass ceramics
(prosthetic; glass reinforced hydroxyapatite for hard tissue surgery)

IT 7758-87-4, Tricalcium phosphate
(glass reinforced hydroxyapatite for hard tissue surgery)

IT 1305-78-8, Calcium oxide (CaO)
) , biological studies 1306-06-5, Hydroxyapatite 1313-59-3, Sodium oxide (Na2O), biological studies 1314-56-3, Phosphorus oxide (P2O5), biological studies
(glass reinforced hydroxyapatite for hard tissue surgery)

OS.CITING REF COUNT: 32 THERE ARE 32 CAPLUS RECORDS THAT CITE THIS RECORD (32 CITINGS)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 11 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2001:244273 HCAPLUS Full-text

DOCUMENT NUMBER: 135:111925

TITLE: In vitro biocompatibility of resorbable
experimental glass ceramics for bone substitutes

AUTHOR(S): Ignatius, Anita A.; Schmidt, Carla; Kaspar,
Daniela; Claes, Lutz E.

CORPORATE SOURCE: Institute of Orthopaedic Research and

Biomechanics, University of Ulm, Ulm, 89081,
Germany

SOURCE: Journal of Biomedical Materials Research (2001), 55(3), 285-294
CODEN: JBMRBG; ISSN: 0021-9304

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 06 Apr 2001

AB Tricalcium phosphate ceramics (TCPs) are increasingly used as bone substitutes. They demonstrate good biocompatibility and degrade relatively slowly. New glass ceramics based on calcium alkali orthophosphates ($\text{Ca}_2\text{KNa}(\text{PO}_4)_2$) were developed that degrade faster than TCP but could have reduced biocompatibility due to their high solubility. Therefore, they were modified by a neutralizing surface treatment. The aim of this study was to evaluate the biocompatibility of some of these ceramics, GB1a, GB9, and GB14, which differ in the amount of added Na, K, Mg, or Si ions, with standard and modified surfaces. The in vitro cytotoxicity of the ceramics GB1a, GB9, and GB14 was determined by the agar diffusion and filter test and the microculture tetrazolium (MTT) assay. In order to investigate the influence of surface modification, these three ceramics were compared to their surface-treated counterparts, GB1aN, GB9N, and GB14N. GB1a, the ceramic with the highest in vitro solubility, showed the strongest toxic influence in all cell culture tests. GB9 and GB14 produced better results. In contrast, the counterparts with modified surfaces exhibited no (GB9N, GB14N) or weak (GB1aN) signs of cytotoxicity. It is concluded that the toxicity of the ceramics GB1a, GB9, and GB14 depends on their solubility. A pos. influence of the surface treatment on in vitro biocompatibility was demonstrated. Therefore, the surface-treated glass ceramics could be promising materials for bone replacement.

IT 7758-87-4, Tricalcium phosphate
(In vitro biocompatibility of resorbable exptl. glass ceramics for bone substitutes)

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IT 1305-78-8, Calcium oxide, biological studies
1314-56-3, Phosphorus oxide (P2O5), biological studies
(In vitro biocompatibility of resorbable exptl. glass ceramics for bone substitutes)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS
 CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 63-7 (Pharmaceuticals)

Section cross-reference(s): 1

IT 7758-87-4, Tricalcium phosphate

(In vitro biocompatibility of resorbable exptl. glass ceramics for bone substitutes)

IT 1305-78-8, Calcium oxide, biological studies 1309-48-4,

Magnesium oxide (MgO), biological studies 1313-59-3, Sodium oxide

(Na2O), biological studies 1314-56-3, Phosphorus oxide

(P2O5), biological studies 7631-86-9, Silica, biological studies

12136-45-7, Potassium oxide (K2O), biological studies

(In vitro biocompatibility of resorbable exptl. glass ceramics for bone substitutes)

OS.CITING REF COUNT: 17 THERE ARE 17 CAPLUS RECORDS THAT CITE THIS RECORD (17 CITINGS)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 12 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2001:217258 HCAPLUS Full-text

DOCUMENT NUMBER: 134:256928

TITLE: Calcium phosphate glass-coated titanium-containing metals with good biocompatibility for artificial dental root and bone, and their manufacture

INVENTOR(S): Kasuga, Toshihiro; Shinke, Mitsuo; Toyama, Kimio

PATENT ASSIGNEE(S): Yamahachi Shizai Kogyo K. K., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001080936	A	20010327	JP 1999-253376	19990907
			<--	
PRIORITY APPLN. INFO.:			JP 1999-253376	19990907
			<--	

ED Entered STN: 28 Mar 2001

AB Ti-containing metals coated with the title glass via a Ti oxide-containing layer are manufactured by treatment of the substrates with Ca phosphate glass materials and calcined at 500-1000° under O-containing atmospheric Thus, Ti-29Nb-Ta-4.6Zr alloy was sandblasted, soaked in a slurry of a glass material (CaO:P2O5:TiO2:Na2O = 60:30:3:7 mol), and calcined at 800° for 30 min to form β-Ca3(PO4)2 and β-Ca2P2O7 in the glass layer and a P- and Ti-rich oxide layer between the substrate and the glass layer.

IT 1305-78-8, Calcium oxide, processes 1314-56-3,

Phosphorus oxide (p2O5), processes

(Ca phosphate glass-coated Ti-containing metals with good biocompatibility for artificial dental root and bone)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS
 CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 7758-87-4, Tricalcium diphosphate
 (β-; Ca phosphate glass-coated Ti-containing metals with good biocompatibility for artificial dental root and bone)

RN 7758-87-4 HCAPLUS
 CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IPCI C03C0008-08 [ICM,7]; A61C0008-00 [ICS,7]; A61L0027-00 [ICS,7];
 C03C0017-04 [ICS,7]; C03C0017-36 [ICS,7]
 IPCR A61C0008-00 [I,C*]; A61C0008-00 [I,A]; A61L0027-00 [I,C*]; A61L0027-00
 [I,A]; C03C0008-00 [I,C*]; C03C0008-08 [I,A]; C03C0017-02 [I,C*];
 C03C0017-04 [I,A]; C03C0017-36 [I,C*]; C03C0017-36 [I,A]
 CC 63-7 (Pharmaceuticals)
 ST calcium phosphate glass coated titanium alloy; artificial
 dental bone titanium alloy
 IT Glass ceramics
 (Ca phosphate glass-coated Ti-containing metals with good biocompatibility for artificial dental root and bone)
 IT Dental materials and appliances
 (artificial dental roots; Ca phosphate glass-coated Ti-containing metals with good biocompatibility for artificial dental root and bone)
 IT Bone
 (artificial; Ca phosphate glass-coated Ti-containing metals with good biocompatibility for artificial dental root and bone)
 IT Titanium alloy, base
 (Ca phosphate glass-coated Ti-containing metals with good biocompatibility for artificial dental root and bone)
 IT 1305-78-8, Calcium oxide, processes 1313-59-3, Sodium oxide, processes 1314-56-3, Phosphorus oxide (p2O5), processes
 (Ca phosphate glass-coated Ti-containing metals with good biocompatibility for artificial dental root and bone)
 IT 13463-67-7, Titanium oxide, biological studies
 (Ca phosphate glass-coated Ti-containing metals with good biocompatibility for artificial dental root and bone)
 IT 331442-97-8, Ti29NbTa4.6Zr
 (Ca phosphate glass-coated Ti-containing metals with good biocompatibility for artificial dental root and bone)

IT 7758-87-4, Tricalcium diphosphate 7790-76-3, Calcium phosphate (Ca₂P₂O₇)
(β-; Ca phosphate glass-coated Ti-containing metals with good biocompatibility for artificial dental root and bone)

L36 ANSWER 13 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2001:31408 HCAPLUS Full-text
DOCUMENT NUMBER: 134:89968
TITLE: Novel mineral compositions for use as hydroxyapatite precursors, use for reinforcing concrete
INVENTOR(S): Chane-Ching, Jean-Yves; Sanchez, Clement; Damidot, Denis
PATENT ASSIGNEE(S): Rhodia Chimie, Fr.; Bouygues Travaux Publics; Lafarge
SOURCE: PCT Int. Appl., 32 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001002294	A1	20010111	WO 2000-FR1888	20000703
<--				
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
FR 2796061	A1	20010112	FR 1999-8644	19990705
<--				
FR 2796061	B1	20010928		
PRIORITY APPLN. INFO.:			FR 1999-8644	A 19990705
<--				

ED Entered STN: 12 Jan 2001

AB Inorg. compns., based on the CaO-P₂O₅-Na₂O-SiO₂ and CaO-P₂O₅-SiO₂ systems, for use as precursors, to the formation of such as hydroxyapatite and in particular as fibers, are described. The precursors may be used in a hydraulic binder matrix. Hydroxyapatite fibers may be formed in concrete mixts. as a reinforcement. Thus, sodium silicate, (NH₄)₂HPO₄ + ammonia (to adjust the pH), and Ca(NO₃)₂ solns. were combined with agitation to form a white gel, dried and calcined to form a precursor containing Na₃Ca₆(PO₄)₅ (main), NaCaPO₄, β-NaCa₁₀(PO₄)₇ phases. This precursor was added to a hydraulic binder containing C₃S (obtained by calcination of SiO₂ and CaCO₃) and the paste treated in an autoclave. The phases generated by hydration of the clinker or the inorg. composition were Ca₁₀(PO₄)(OH)₂, Ca₆(Si₂O₇)(OH)₆, Ca(OH)₂, and the sample had a fibrous morphol.

IT 1305-78-8P, Calcium oxide (CaO), preparation
(system, starting material; hydroxyapatite precursor compns. for hydroxyapatite fiber formation as reinforcement in concrete)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

IT 1314-56-3P, Phosphorus oxide (P2O5), preparation
(system; hydroxyapatite precursor compns. for hydroxyapatite fiber
formation as reinforcement in concrete)

RN 1314-56-3 HCAPLUS

CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 7758-87-4P, Calcium phosphate (Ca3(PO4)2)

(α -/ β -phase, starting material; hydroxyapatite precursor
compns. for hydroxyapatite fiber formation as reinforcement in
concrete)

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IPCI C01B0025-32 [ICM,7]; C01B0025-00 [ICM,7,C*]; A61L0027-42 [ICS,7];
A61L0027-00 [ICS,7,C*]; C04B0014-38 [ICS,7]; C08K0007-08 [ICS,7];
C08K0007-00 [ICS,7,C*]

IPCR A61L0027-00 [I,C*]; A61L0027-42 [I,A]; C01B0025-00 [I,C*]; C01B0025-32
[I,A]; C04B0014-38 [I,C*]; C04B0014-46 [I,A]; C04B0028-00 [I,C*];
C04B0028-02 [I,A]

CC 57-2 (Ceramics)

Section cross-reference(s): 63

IT 1305-78-8P, Calcium oxide (CaO), preparation
(system, starting material; hydroxyapatite precursor compns. for
hydroxyapatite fiber formation as reinforcement in concrete)

IT 1313-59-3P, Sodium oxide, preparation 1314-56-3P,
Phosphorus oxide (P2O5), preparation
(system; hydroxyapatite precursor compns. for hydroxyapatite fiber
formation as reinforcement in concrete)

IT 7758-87-4P, Calcium phosphate (Ca3(PO4)2)
(α -/ β -phase, starting material; hydroxyapatite precursor
compns. for hydroxyapatite fiber formation as reinforcement in
concrete)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L36 ANSWER 14 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2001:23431 HCAPLUS Full-text

DOCUMENT NUMBER: 134:316046

TITLE: Treatment of tooth fracture by medium-energy CO2
laser and DP-bioactive glass paste: the
interaction of enamel and DP-bioactive glass paste

AUTHOR(S): during irradiation by CO2 laser
Lin, C.-P.; Tseng, Y.-C.; Lin, F.-H.; Liao, J.-D.;
Lan, W.-H.
CORPORATE SOURCE: College of Medicine, School of Dentistry,
Department of Endodontics, National Taiwan
University, Taipei, Taiwan
SOURCE: Biomaterials (2001), 22(5), 489-496
CODEN: BIMADU; ISSN: 0142-9612
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

ED Entered STN: 10 Jan 2001

AB Acute trauma or trauma associated with occlusal disturbance can produce tooth crack or fracture. Although several methods are proposed to treat the defect, however, the prognosis is generally poor. If the fusion of a tooth fracture by laser is possible, it will offer an alternative to extraction or at least serve as an adjunctive treatment in the reconstruction. We have tried to use a continuous-wave CO2 laser and a newly developed DP-bioactive glass paste (DPGP) to fuse or bridge tooth crack or fracture lines. Both the DP-bioactive glass paste and tooth enamel have strong absorption bands at the wavelength of 10.6 μm . Therefore, under CO2 laser, DPGP and enamel should have an effective absorption and melt together. The interface between DPGP and enamel could be regarded as a mixture of DPGP and enamel (DPG-E). The study focused on the phase transformation, microstructure, functional group and thermal behavior of DPG-E with or without CO2 laser irradiation, by the anal. techniques of XRD, FTIR, DTA/TGA, and SEM. The results of XRD showed that the main crystal phase in the DPG-E was dicalcium phosphate dihydrate ($\text{CaHPO}_4 \cdot 2\text{H}_2\text{O}$). It changed into CaHPO_4 , $\gamma\text{-Ca}_2\text{P}_2\text{O}_7$, $\beta\text{-Ca}_2\text{P}_2\text{O}_7$ and finally $\alpha\text{-Ca}_2\text{P}_2\text{O}_7$ with increasing temperature in the FTIR anal., the 720 cm^{-1} absorption band ascribed to the P-O-P linkage in pyrophosphate rose up and the intensities of the OH- bands reduced after laser irradiation. In regard to the results of DTA/TGA after irradiation, the weight loss decreased due to the removal of part of absorption water and crystallization water by the CO2 laser. SEM micrographs revealed that the melted masses and the plate-like crystals formed a tight chemical bond between the enamel and DPGP. We expect that DPGP with the help of CO2 laser can be an alternative to the treatment of tooth crack or fracture.

IT 1305-78-8, Calcium oxide, biological studies
1314-56-3, Phosphorus oxide, biological studies
(interaction of enamel and DP-bioactive glass paste during irradiation
by CO2 laser in treatment of tooth fracture)
RN 1305-78-8 HCAPLUS
CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS
CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 7758-87-4, Tricalcium phosphate
(interaction of enamel and DP-bioactive glass paste during irradiation
by CO2 laser in treatment of tooth fracture)
RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

CC 63-7 (Pharmaceuticals)
 IT Dental materials and appliances
 (glasses; interaction of enamel and DP-bioactive glass paste during
 irradiation by CO2 laser in treatment of tooth fracture)
 IT 1305-78-8, Calcium oxide, biological studies 1313-59-3,
 Sodium oxide, biological studies 1314-56-3, Phosphorus
 oxide, biological studies 7631-86-9, Silica, biological studies
 (interaction of enamel and DP-bioactive glass paste during irradiation
 by CO2 laser in treatment of tooth fracture)
 IT 497-19-8, Sodium carbonate, reactions 7758-87-4,
 Tricalcium phosphate
 (interaction of enamel and DP-bioactive glass paste during irradiation
 by CO2 laser in treatment of tooth fracture)
 OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS
 RECORD (8 CITINGS)
 REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L36 ANSWER 15 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2000:462070 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 133:242533

TITLE:
 Structural insights of glass-reinforced
 hydroxyapatite composites by Rietveld refinement
 Lopes, M. A.; Knowles, J. C.; Santos, J. D.
 AUTHOR(S):
 CORPORATE SOURCE: Laboratorio de Biomateriais, INEB-Instituto de
 Engenharia Biomedica, Oporto, 4150-180, Port.
 Biomaterials (2000), 21(18), 1905-1910
 CODEN: BIMADU; ISSN: 0142-9612

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 10 Jul 2000

AB Phase transformations and interstitial and/or substitution of trace elements during the liquid-phase sintering process of P205- CaO-MgO glass-reinforced hydroxyapatite (GR-HA) composites were examined by X-ray diffraction and Rietveld analyses. Using the Rietveld method for structure refinement, changes in the lattice parameters of the two main phases of the composites, hydroxyapatite (HA) and β -tricalcium phosphate (β -TCP), as well as changes in several bond lengths and in the occupancy of the hydroxyl oxygen site in the HA phase structure were assessed. The glasses gave rise to formation of between approx. 45 and 50% of β -TCP, with evidence for the Mg2+ enhancing the formation of β -TCP. Between 1300 and 1350°C, the β -TCP inverts to α -TCP, without further decomposition of the residual HA. The glasses showed evidence for stabilization of the hydroxyl group located in the hydroxyl channels. This is supported by measurements of the hydroxyl channel radius (R_c), the Ca2-OH bond length and the hydroxyl oxygen occupancy (Oocc). Results showed that the Mg2+ containing glasses induced the β -TCP phase formation in the

structure of GR-HA composites and retarded the β -TCP into α -TCP transformation at higher temps. The chemical composition of the P205 glasses also induces modifications in the lattice parameters of the crystallog. phases present in the microstructure of the composites. This suggests some substitution of Mg^{2+} -for- Ca^{2+} in the β -TCP structure during the liquid-phase sintering process.

IT 1305-78-8, Calcium oxide, biological
studies 1314-56-3, Phosphorus pentoxide, biological
studies
(glass, oxide; structural insights of glass-reinforced
hydroxyapatite composites by Rietveld refinement)
RN 1305-78-8 HCAPLUS
CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS
CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 7758-87-4, Tricalcium phosphate
(structural insights of glass-reinforced hydroxyapatite composites
by Rietveld refinement)
RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

CC 63-7 (Pharmaceuticals)
Section cross-reference(s): 57
IT Dental materials and appliances
Prosthetic materials and Prosthetics
(composites; structural insights of glass-reinforced hydroxyapatite
composites by Rietveld refinement)
IT 1305-78-8, Calcium oxide, biological
studies 1309-48-4, Magnesium oxide, biological studies
1314-56-3, Phosphorus pentoxide, biological studies
(glass, oxide; structural insights of glass-reinforced
hydroxyapatite composites by Rietveld refinement)
IT 7758-87-4, Tricalcium phosphate
(structural insights of glass-reinforced hydroxyapatite composites
by Rietveld refinement)
OS.CITING REF COUNT: 12 THERE ARE 12 CAPLUS RECORDS THAT CITE THIS
RECORD (12 CITINGS)
REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE

RE FORMAT

L36 ANSWER 16 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2000:433222 HCAPLUS Full-text

DOCUMENT NUMBER: 134:21416

TITLE: Crystallization and microstructure analysis of calcium phosphate-based glass ceramics for biomedical applications

AUTHOR(S): Zhang, Y.; Santos, J. D.

CORPORATE SOURCE: Laboratorio de Biomateriais, Instituto de Engenharia Biomedica (INEB), Oporto, 4150, Port.

SOURCE: Journal of Non-Crystalline Solids (2000), 272(1), 14-21

CODEN: JNCSEJ; ISSN: 0022-3093

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 28 Jun 2000

AB Calcium phosphate glasses and glass ceramics (CaO/P₂O₅=1.25 in molar ratio) modified by small amts. of additives such as Na₂O, MgO, TiO₂ and ZrO₂ were prepared after appropriate heat treatment for nucleation and crystallization. Based upon DTA results, a two-step heat treatment was used for crystal nucleation and growth. X-ray diffraction (XRD) anal. demonstrated that bioresorbable β -Ca₂P₂O₇ (β -DCP), β -Na₂CaP₂O₇, Na₂Mg(P₂O₃)₄ phases were formed in the glass matrix depending upon the relative contents of the additives. By adding higher contents of Na₂O and TiO₂ and using CaO/P₂O₅=1.5-2.0, crystallization of β -DCP and Ca₃(P₂O₄)₂ (β -TCP), and the formation of a dense structure in the glass ceramics were obtained. The precipitation of these crystals could be well distinguished at a magnification of 4000 \times and phases were dispersed in areas of micron size. A porous structure may be easily formed after the soluble phases are dissolved in physiolo. media. These glass ceramics with high CaO/P₂O₅ ratio, modified by the above mentioned additives are expected to find use as implants for bone replacement/regeneration and drug delivery carriers synergistically, because the soluble phases may act as drug delivery carriers and the porous structure will allow for bone ingrowth.

CC 63-8 (Pharmaceuticals)

Section cross-reference(s): 57

ST calcium phosphate glass ceramic biomaterial

IT 1317-70-0, Anatase 7758-87-4, β -Tricalcium phosphate 7790-76-3, Dicalcium diphosphate 13477-39-9

21360-35-0, Calcium disodium pyrophosphate 22722-20-9
(crystallization and microstructure anal. of calcium phosphate-based glass ceramics for biomedical applications)

OS.CITING REF COUNT: 35 THERE ARE 35 CAPLUS RECORDS THAT CITE THIS RECORD (35 CITINGS)

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 17 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2000:189214 HCAPLUS Full-text

DOCUMENT NUMBER: 133:48845

TITLE: Stoichiometric transfer in pulsed laser deposition of hydroxylapatite

AUTHOR(S): Arias, J. L.; Mayor, M. B.; Pou, J.; Leon, B.; Perez-Amor, M.

CORPORATE SOURCE: Lagoas-Marcosende 9, Departamento de Fisica Aplicada, Universidade de Vigo, Vigo, E-36200, Spain

SOURCE: Applied Surface Science (2000), 154-155,
434-438
CODEN: ASUSEE; ISSN: 0169-4332
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

ED Entered STN: 24 Mar 2000

AB Hydroxylapatite (HA, $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$) is a calcium phosphate used as coating for dental and orthopedic implants because its composition and structure are similar to the mineral part of bone. As an alternative to traditional plasma sprayed coating technique, pulsed laser deposition (PLD) has been applied due to its ability to reproduce complex stoichiometries. A hydroxylapatite target was ablated with an ArF laser in a water vapor atmospheric to investigate in which range of fluences the stoichiometric transfer to a titanium substrate is possible. The Ca/P ratio of the coatings was measured by energy dispersive spectroscopy (EDS), while their OH- and CO_3^{2-} content was evaluated by Fourier transform IR (FT-IR) spectroscopy. The irradiated target surface was analyzed by SEM and the ablation rate measured with a profilometer. While at higher fluences all the target material is congruently ablated and stoichiometry is transferred to the coatings, at lower fluences ($<1.2 \text{ J cm}^{-2}$) preferential ablation of Ca and strong out-diffusion of CO_3^{2-} impurity as CO_2 takes place at the target. The incongruent melting of the hydroxylapatite target at low fluences provokes its enrichment in Ca. The higher Ca concns. arriving to the substrate, together with the higher CO_2 partial pressure, yields enhanced substitution of PO_4^{3-} by CO_3^{2-} and increasing of the Ca/P ratio at the coating.

IT 1305-78-8, Calcium oxide, formation (nonpreparative)
1314-56-3, Phosphorus pentoxide, formation (nonpreparative)
7758-87-4, Tricalcium phosphate
(stoichiometric transfer in pulsed laser deposition of
hydroxylapatite)
RN 1305-78-8 HCAPLUS
CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS
CN Phosphorus oxide (P_2O_5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

CC 63-7 (Pharmaceuticals)

Section cross-reference(s): 42

IT Dental materials and appliances
Prosthetic materials and Prosthetics
(implants; stoichiometric transfer in pulsed laser deposition of hydroxylapatite)

IT 1305-78-8, Calcium oxide, formation (nonpreparative)
1306-01-0, Tetracalcium phosphate 1314-56-3, Phosphorus pentoxide, formation (nonpreparative) 7758-87-4, Tricalcium phosphate
(stoichiometric transfer in pulsed laser deposition of hydroxylapatite)

OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD (8 CITINGS)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 18 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1999:688192 HCAPLUS Full-text

DOCUMENT NUMBER: 132:26792

TITLE: Glass-reinforced hydroxyapatite composites: fracture toughness and hardness dependence on microstructural characteristics

AUTHOR(S): Lopes, Maria A.; Monteiro, Fernando J.; Santos, Jose D.

CORPORATE SOURCE: Laboratorio de Biomateriais, Instituto de Engenharia Biomedica (INEB), Oporto, 4150, Port.

SOURCE: Biomaterials (1999), 20(21), 2085-2090
CODEN: BIMADU; ISSN: 0142-9612

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 29 Oct 1999

AB Fracture toughness and hardness properties of CaO- P2O5 glass-reinforced hydroxyapatite composites were assessed by using indentation techniques and results calculated according to Laugier and Evans' equations. Both properties were dependent upon several microstructural characteristics, i.e., residual porosity and the percentage of secondary β - and α - tricalcium phosphate phases in the structure of the composites. Composites presented a Palmqvist-type indentation crack system, which is the specific crack system addressed by Laugier's approach. Fracture toughness detns. according to Evan's equation, which is a universal one and adapted to both median and Palmqvist crack systems, did not correlate well with Laugier detns.

IT 7758-87-4, Tricalcium phosphate
(fracture toughness and hardness of glass-reinforced hydroxyapatite composites)

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IT 1305-78-8, Calcium oxide, biological
 studies 1314-56-3, Phosphorus pentoxide, biological
 studies
 (fracture toughness and hardness of glass-reinforced hydroxyapatite
 composites)
 RN 1305-78-8 HCAPLUS
 CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS
 CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 63-7 (Pharmaceuticals)
 Section cross-reference(s): 57
 IT Dental materials and appliances
 Prosthetic materials and Prosthetics
 (composites; fracture toughness and hardness of glass-reinforced
 hydroxyapatite composites)
 IT Fracture toughness
 Hardness (mechanical)
 Microstructure
 Porosity
 (fracture toughness and hardness of glass-reinforced hydroxyapatite
 composites)
 IT 7758-87-4, Tricalcium phosphate
 (fracture toughness and hardness of glass-reinforced hydroxyapatite
 composites)
 IT 1305-78-8, Calcium oxide, biological
 studies 1306-06-5, Hydroxyapatite 1309-48-4, Magnesium oxide
 (MgO), biological studies 1314-56-3, Phosphorus pentoxide,
 biological studies 7789-75-5, Calcium fluoride (CaF₂), biological
 studies
 (fracture toughness and hardness of glass-reinforced hydroxyapatite
 composites)
 OS.CITING REF COUNT: 46 THERE ARE 46 CAPLUS RECORDS THAT CITE THIS
 RECORD (46 CITINGS)
 REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L36 ANSWER 19 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 1999:278235 HCAPLUS Full-text
 DOCUMENT NUMBER: 131:63406
 TITLE: Hydrophobicity, surface tension, and zeta
 potential measurements of glass-reinforced
 hydroxyapatite composites
 AUTHOR(S): Lopes, M. A.; Monteiro, F. J.; Santos, J. D.;
 Serro, A. P.; Saramago, B.
 CORPORATE SOURCE: INEB-Instituto de Engenharia Biomedica, University
 of Porto, Oporto, 4150, Port.
 SOURCE: Journal of Biomedical Materials Research (1999), 45(4), 370-375
 CODEN: JBMRBG; ISSN: 0021-9304

PUBLISHER: John Wiley & Sons, Inc.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

ED Entered STN: 06 May 1999

- AB Wettability and zeta potential studies were performed to characterize the hydrophobicity, surface tension, and surface charge of P2O5-glass-reinforced hydroxyapatite composites. Quant. phase anal. was performed by the Rietveld method using GSAS software applied to x-ray diffractograms. Surface charge was assessed by zeta potential measurements. Protein adsorption studies were performed using vitronectin. Contact angles and surface tensions variation with time were determined by the sessile and pendant drop techniques, resp., using ADSA-P software. The highest (-18.1 mV) and lowest (-28.7 mV) values of zeta potential were found for hydroxyapatite (HA) and β -tricalcium phosphate (β -TCP), resp., with composite materials presenting values in between. All the bioceramic materials showed similar solid surface tension. For HA and β -TCP, solid surface tensions of 46.7 and 45.3 mJ/m², resp., were obtained, while composites presented intermediate surface tension values. The dispersive component of surface tension was the predominant one for all materials studied. Adhesion work values between the vitronectin solution and HA and β -TCP were 79.8 and 88.0 mJ/m², resp., while the 4.0 wt% glass composites showed slightly lower values than the 2.5 wt% ones. The presence of β -TCP influenced surface charge, hydrophobicity, and protein adsorption of the glass-reinforced HA composites, and therefore indirectly affected cell-biomaterial interactions.
- IT 1305-78-8, Calcium oxide, biological studies
 1314-56-3, Phosphorus pentoxide, biological studies
 7758-87-4, Tricalcium phosphate
 (hydrophobicity and surface tension and zeta potential of glass-reinforced hydroxyapatite composites)
- RN 1305-78-8 HCAPLUS
- CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

- RN 1314-56-3 HCAPLUS
- CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

- RN 7758-87-4 HCAPLUS
- CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

- CC 63-7 (Pharmaceuticals)
- IT 1305-78-8, Calcium oxide, biological studies 1306-06-5, Hydroxyapatite 1309-48-4, Magnesium oxide (MgO), biological studies

1314-56-3, Phosphorus pentoxide, biological studies
 7758-87-4, Tricalcium phosphate 7789-75-5, Calcium fluoride
 (CaF₂), biological studies

(hydrophobicity and surface tension and zeta potential of
 glass-reinforced hydroxyapatite composites)

OS.CITING REF COUNT: 42 THERE ARE 42 CAPLUS RECORDS THAT CITE THIS
 RECORD (42 CITINGS)
 REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L36 ANSWER 20 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1999:224764 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 130:355698

TITLE: Preparation of bio-glass-ceramics with gradient
 structure based on CaO-P2O5-Al2O3-B2O3 system

AUTHOR(S): Wang, Deping

CORPORATE SOURCE: Tongji University, Shanghai, Peop. Rep. China

SOURCE: Boli Yu Tangci (1999), 27(1), 1-4

CODEN: BYTAE8; ISSN: 1000-2871

PUBLISHER: Quanguo Boli Tangci Gongye Jishu Qingbaozhan,
 Qinggongyebu Boli Tangci Gongye Kexue Yanjiuso

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

ED Entered STN: 12 Apr 1999

AB A new bio-glass-ceramic material for dental restoration based on CaO-P2O5-
 Al2O3-B2O3 system was prepared by special three-stage heat treatment.
 Crystalline phases and microstructure of the bio-glass ceramics were
 identified by XRD and SEM. The results showed that major crystalline phases
 in the material were [Ca10(PO4)6(OH)2] and β-Ca3(PO4)2, the material had
 gradient structure from surface to inside, and its color was similar to
 natural dentin.

IT 7758-87-4, Calcium phosphate (Ca3(PO4)2)

(major crystalline phase; preparation of bio-glass ceramics with gradient
 structure based on calcia-phosphorus oxide-alumina-boron oxide
 system)

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IT 1305-78-8, Calcium oxide (CaO), uses 1314-56-3,
 Phosphorus oxide (P2O5), uses
 (preparation of bio-glass ceramics with gradient structure based on
 calcia-phosphorus oxide-alumina-boron oxide system)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS
 CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 57-1 (Ceramics)

Section cross-reference(s): 63

ST bioactive glass ceramic gradient structure prep; calcium phosphorus
 aluminoborate glass ceramic; dental restoration bioactive
 glass ceramic

IT Dental materials and appliances

(preparation of bio-glass ceramics with gradient structure based on
 calcia-phosphorus oxide-alumina-boron oxide system for)

IT 7758-87-4, Calcium phosphate (Ca3(PO4)2) 12167-74-7,

Calcium hydroxide phosphate (Ca10(OH)2(PO4)6)

(major crystalline phase; preparation of bio-glass ceramics with gradient
 structure based on calcia-phosphorus oxide-alumina-boron oxide
 system)

IT 1303-86-2, Boron oxide (B2O3), uses 1305-78-8, Calcium
 oxide (CaO), uses 1314-56-3, Phosphorus oxide (P2O5), uses

1344-28-1, Alumina, uses

(preparation of bio-glass ceramics with gradient structure based on
 calcia-phosphorus oxide-alumina-boron oxide system)

L36 ANSWER 21 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1998:403585 HCAPLUS Full-text

DOCUMENT NUMBER: 129:153184

ORIGINAL REFERENCE NO.: 129:31111a

TITLE: In vitro investigation of novel calcium phosphates
 using osteogenic cultures

AUTHOR(S): Knabe, C.; Ostapowicz, W.; Radlanski, R. J.;

Gildenhaar, R.; Berger, G.; Fitzner, R.; Gross, U.

CORPORATE SOURCE: Dep. Restorative Dentistry Periodontology, Univ.

Hosp. Benjamin Franklin, Free Univ. Berlin,

Berlin, 14197, Germany

SOURCE: Journal of Materials Science: Materials in

Medicine (1998), 9(6), 337-345

CODEN: JSMMEJ; ISSN: 0957-4530

PUBLISHER: Kluwer Academic Publishers

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 02 Jul 1998

AB A rat bone marrow stromal cell (RBM) culture was used to evaluate novel
 bioactive calcium phosphate ceramics. Three rapidly resorbable, glassy
 crystalline materials with the main crystalline phase Ca2KNa(PO4)2 were
 investigated (sample code GB 1a, GB 14, GB 9). These materials were designed
 to exhibit a higher degree of biodegradability than tricalcium phosphate.
 Addnl., a bioactive glass ceramic of low biodegradability was examined (sample
 code AP 40). RBM cells were cultured on the disk-shaped test substrate for 14
 d. The culture medium was changed and calcium and phosphate concns. of the
 medium were determined daily. Specimens were evaluated using light microscopy
 and morphometry of the cell-covered substrate surface, SEM and energy
 dispersive X-ray anal. Except for GB 1a, the rat bone marrow cells attached
 and grew on all substrate surfaces. Of the different calcium phosphate
 ceramics tested, AP 40 facilitated osteoblast growth and the elaboration of
 the extracellular matrix to the highest degree followed by GB 9 and GB 14.

The inhibition of cell growth encountered with GB 1a seemed to be related to its high phosphate ion release.

IT 1305-78-8, Calcium oxide, biological studies
 1314-56-3, Phosphorus pentoxide, biological studies
 7758-87-4, Tricalcium phosphate
 (in vitro investigation of novel calcium phosphates using osteogenic cultures)
 RN 1305-78-8 HCAPLUS
 CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS
 CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 7758-87-4 HCAPLUS
 CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

CC 63-7 (Pharmaceuticals)
 IT Dental materials and appliances
 (ceramics; in vitro investigation of novel calcium phosphates using osteogenic cultures)
 IT 1305-78-8, Calcium oxide, biological studies 1309-48-4, Magnesium oxide, biological studies 1313-59-3, Sodium oxide, biological studies 1314-56-3, Phosphorus pentoxide, biological studies 7631-86-9, Silica, biological studies 7758-87-4, Tricalcium phosphate 7789-75-5, Calcium fluoride, biological studies 12136-45-7, Potassium oxide, biological studies 131862-42-5
 (in vitro investigation of novel calcium phosphates using osteogenic cultures)
 OS.CITING REF COUNT: 14 THERE ARE 14 CAPLUS RECORDS THAT CITE THIS RECORD (14 CITINGS)
 REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 22 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 1998:193207 HCAPLUS Full-text
 DOCUMENT NUMBER: 128:261892
 ORIGINAL REFERENCE NO.: 128:51758h, 51759a
 TITLE: Developmental study of functional glass ceramics.
 Part 1. Strength evaluation

AUTHOR(S): Yoshida, Yasuhiro; Wakasa, Kunio; Ikeda, Atsuharu; Natsir, Nurhayaty; Shirai, Ken-ichi; Yoshioka, Masayuki; Yamaki, Masao

CORPORATE SOURCE: Dep. Dental Mater., Hiroshima Univ. Sch. Dent., Hiroshima, 734, Japan

SOURCE: Hiroshima Daigaku Shigaku Zasshi (1997), 29(2), 193-200
CODEN: HUDJAN; ISSN: 0046-7472

PUBLISHER: Hiroshima Daigaku Shigakkai

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 03 Apr 1998

AB An apatite-based glass ceramic, 20 wt% CaO/10 wt% P2O5/10wt%MgO/10wt%Al2O3/50 wt% SiO2, was developed for a dental purpose, which had three different crystals of hydroxyapatite, β -tricalcium phosphate and diopside within the glass matrix. Their crystals were formed by a thermal treatment at test temperature of 890° C for 2 h. As an investment mold, the mixed compns. of Et silicate (a bonding agent) and silica particle (a refractory material) were also developed in order to crystallize thermally glass ceramic within the investment mold. Mech. properties of apatite-based glass ceramic were examined by diametral tensile strength, compressive strength, bending strength, Charpy impact energy and bending fatigue fracture strength. This study showed that the formation of hydroxyapatite was important in considering their increases of mech. strength and also the fracture mechanism would be deduced by the appearance of eigenstrain in the inclusion within the ceramic composite during plastic deformation.

CC 63-7 (Pharmaceuticals)

ST dental glass ceramic composite strength

IT Glass ceramics
Glass ceramics
(dental; strength of dental glass ceramic composites)

IT Dental materials and appliances
Dental materials and appliances
(glass ceramics; strength of dental glass ceramic composites)

IT Plastic deformation
Strength
(strength of dental glass ceramic composites)

IT Apatite-group minerals
(strength of dental glass ceramic composites)

IT 1306-06-5, Hydroxyapatite 7758-87-4, Tricalcium phosphate
(strength of dental glass ceramic composites)

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 23 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1997:679127 HCAPLUS Full-text

DOCUMENT NUMBER: 127:322827

ORIGINAL REFERENCE NO.: 127:63207a, 63210a

TITLE: Elastomeric state glass ionomer cement

INVENTOR(S): Bannister, Dennis James; Doube, Christopher Philip

PATENT ASSIGNEE(S): Nulite Systems International Pty. Ltd., Australia; Bannister, Dennis James; Doube, Christopher Philip

SOURCE: PCT Int. Appl., 16 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9736943	A1	19971009	WO 1997-AU208	19970401
<--				
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, KE, LS, MM, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9721448	A	19971022	AU 1997-21448	19970401
<--				
PRIORITY APPLN. INFO.:			AU 1996-8982	A 19960328
<--				
			WO 1997-AU208	W 19970401
<--				
ED	Entered STN: 25 Oct 1997			
AB	<p>The present invention provides an elastomeric material obtainable by curing a composition comprising a mixture of a liquid precursor of a glass ionomer cement and a powdered precursor of a glass ionomer cement, the liquid precursor comprising at least 1 polymerizable monomer present in a range 2-50% by weight of the liquid precursor of a glass ionomer cement, a polycarboxylic acid and an aqueous solvent, wherein said liquid precursor of a glass ionomer cement and the powdered precursor of a glass ionomer cement are present in a ratio between 2.5:1 and 1:1. Thus, the liquid precursor contained poly(acrylic acid) 26.0, methacrylic acid 16.0, N,N-3,5-tetramethylaniline 0.36, camphorquinone 0.34, BHT 0.20 and 1,5-diallyl-2,4-benzenedicarboxylic acid 8.0 g and water 50 mL. The powder precursor contained aluminum calcium fluorosilicate glass powder 99.8 and benzoyl peroxide 0.2%. The powder to liquid ratio was 1.5:1. This composition was cured to an elastomeric state by a free radical polymerization process and finally to a glass ionomer cement.</p>			
IT	1305-78-8, Calcium oxide, biological studies 1314-56-3, Phosphorus pentoxide, biological studies 7758-87-4, Calcium phosphate (elastomeric state glass ionomer cement)			
RN	1305-78-8 HCAPLUS			
CN	Calcium oxide (CaO) (CA INDEX NAME)			

Ca=O

RN 1314-56-3 HCAPLUS
CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IPCI C08F0265-02 [ICM,6]; C08F0265-00 [ICM,6,C*]; C08F0267-02 [ICS,6];
C08F0267-00 [ICS,6,C*]; A61K0006-083 [ICS,6]; A61K0006-02 [ICS,6,C*]
IPCR A61K0006-02 [I,C*]; A61K0006-083 [I,A]; C04B0026-00 [I,C*];
C04B0026-02 [I,A]; C04B0028-00 [I,C*]; C04B0028-28 [I,A]; C08F0265-00
[I,C*]; C08F0265-02 [I,A]; C08F0267-00 [I,C*]; C08F0267-02 [I,A]
CC 63-7 (Pharmaceuticals)
ST glass ionomer cement dental elastomeric; metal polyacrylate
cement dental elastomeric
IT Dental materials and appliances
(cements; elastomeric state glass ionomer cement)
IT 79-41-4, biological studies 371-47-1, Disodium maleate 868-18-8,
Disodium tartrate, biological studies 1304-28-5, Barium oxide,
biological studies 1305-62-0, Calcium hydroxide, biological studies
1305-78-8, Calcium oxide, biological studies 1314-11-0,
Strontium oxide, biological studies 1314-13-2, Zinc oxide,
biological studies 1314-56-3, Phosphorus pentoxide,
biological studies 1344-28-1, Aluminum oxide, biological studies
7439-88-5, Iridium, biological studies 7439-92-1, Lead, biological
studies 7440-05-3, Palladium, biological studies 7440-06-4,
Platinum, biological studies 7440-22-4, Silver, biological studies
7440-31-5, Tin, biological studies 7440-33-7, Tungsten, biological
studies 7440-36-0, Antimony, biological studies 7440-39-3, Barium,
biological studies 7440-43-9, Cadmium, biological studies
7440-57-5, Gold, biological studies 7440-69-9, Bismuth, biological
studies 7681-49-4, Sodium fluoride, biological studies
7758-87-4, Calcium phosphate 7779-90-0, Zinc phosphate
7783-48-4, Strontium fluoride 7789-75-5, Calcium fluoride,
biological studies 9003-01-4, Poly(acrylic acid) 9011-14-7, PMMA
13775-53-6, Sodium aluminum hexafluoride 17194-00-2, Barium
hydroxide 18480-07-4, Strontium hydroxide 20427-58-1, Zinc
hydroxide 21645-51-2, Aluminum hydroxide, biological studies
25119-64-6, Poly(itaconic acid) 25153-40-6, Maleic acid-vinyl methyl
ether copolymer 25751-21-7, Acrylic acid-methacrylic acid copolymer
58308-30-8, Acrylic acid-methacrylic acid-Styrene copolymer
197707-41-8
(elastomeric state glass ionomer cement)
OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS
RECORD (5 CITINGS)
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT
L36 ANSWER 24 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1996:494331 HCAPLUS Full-text
DOCUMENT NUMBER: 125:123821
ORIGINAL REFERENCE NO.: 125:23041a,23044a
TITLE: Preparation of implants with surface coated with
calcium phosphate
INVENTOR(S): Shioda, Hiroshi

PATENT ASSIGNEE(S): Olympus Optical Co, Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08131533	A	19960528	JP 1994-273853	19941108
			<--	
PRIORITY APPLN. INFO.:			JP 1994-273853	19941108
			<--	

ED Entered STN: 20 Aug 1996

AB The implant surface is painted with a mixture of binder glass (CaO-Na₂O-P₂O₅-Al₂O₃ with different ratios) and β -TCP (1:1.3 weight ratio) powders or a mixture of β -TCP preheated at 1000-1180° and the binder glass and heated at 700-780°. Ti or Ti alloy can be used as the basic material for the implant. The implants prepared have strong binding strength with the coating membrane and are useful as artificial bone or tooth.

IT 1305-78-8, Calcium oxide (CaO), biological studies
 1314-56-3, Phosphorus oxide (P₂O₅), biological studies

7758-87-4, β -Tricalcium phosphate
 (preparation of implants with surface coated with calcium phosphate)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS

CN Phosphorus oxide (P₂O₅) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IPCI A61L0027-00 [ICM,6]; A61C0008-00 [ICS,6]

IPCR A61C0008-00 [I,C*]; A61C0008-00 [I,A]; A61L0027-00 [I,C*]; A61L0027-00 [I,A]

CC 63-7 (Pharmaceuticals)

IT Dental materials and appliances

(dentures, preparation of implants with surface coated with calcium phosphate)

IT 1395-78-8, Calcium oxide (CaO), biological studies
 1313-59-3, Sodium oxide (Na2O), biological studies 1314-56-3
 , Phosphorus oxide (P2O5), biological studies 1344-28-1, Aluminum
 oxide (Al2O3), biological studies 7758-87-4,
 β-Tricalcium phosphate 10103-46-5, Calcium phosphate
 (preparation of implants with surface coated with calcium phosphate)

L36 ANSWER 25 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1996:298936 HCAPLUS Full-text
 DOCUMENT NUMBER: 125:18899
 ORIGINAL REFERENCE NO.: 125:3701a,3704a
 TITLE: Water vapor pressure influence on CaO-
 P2O5 system phase diagram
 AUTHOR(S): Santos, Celia; Pazo, Ana; Guitian, Francisco
 CORPORATE SOURCE: Instituto de Ceramica, Universidad de Santiago,
 Santiago de Compostela, 15706, Spain
 SOURCE: Advances in Science and Technology (Faenza, Italy)
 (1995), 12(Materials in Clinical
 Applications), 11-18
 CODEN: ASET55

PUBLISHER: Techna
 DOCUMENT TYPE: Journal
 LANGUAGE: English

ED Entered STN: 21 May 1996

AB Calcium phosphate bioceramics have been used in orthopedics for several years
 and the function of the implant dets. the use of 1 or other calcium phosphate.
 Sintering of these ceramics is carried out at 1000-1500°, and phases formed
 during it depend not only on temperature but on water vapor partial pressure
 as well. In this work high temperature equilibrium of dicalcium phosphate,
 tricalcium phosphate, tetracalcium phosphate and hydroxylapatite are
 discussed, studying the effect of water vapor partial pressure on their heat
 behavior. Without a rigorous control of temperature, Ca/P ratio and water
 vapor partial pressure, compns. of final products are unpredictable.

CC 63-7 (Pharmaceuticals)

ST water vapor phase diagram calcium oxide;
 phosphorus pentoxide water vapor phase diagram

IT Water vapor
 (water vapor pressure effect on CaO-P2O5 system
 phase diagram)

IT Prosthetic materials and Prosthetics
 (implants, water vapor pressure effect on CaO-
 P2O5 system phase diagram)

IT 1305-78-8, Calcium oxide (CaO),
 biological studies 1306-06-5, Hydroxyapatite 1314-56-3, Phosphorus
 oxide (P2O5), biological studies 7757-93-9, Dicalcium
 phosphate 13767-12-9, Tetracalcium phosphate
 (water vapor pressure effect on CaO-P2O5 system
 phase diagram)

OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS
 RECORD (5 CITINGS)

L36 ANSWER 26 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1995:309752 HCAPLUS Full-text
 DOCUMENT NUMBER: 122:89320
 ORIGINAL REFERENCE NO.: 122:16755a,16758a
 TITLE: Formation of phosphate coatings on metal implants
 from natural and synthetic body fluid
 AUTHOR(S): Stoch, Anna; Brozek, Alicja; Jastrzebski, Witold;
 Bolek, Anna; Sasiadek, Urszula
 CORPORATE SOURCE: Department of Materials Science and Ceramics,

University of Mining and Metallurgy, Krakow,
30-059, Pol.

SOURCE: Prace Komisji Nauk Ceramicznych, Ceramika (Polska
Akademia Nauk) (1993), 43(Special
Glasses and Amorphous Materials), 163-71
CODEN: PKNCE6; ISSN: 0860-3340

DOCUMENT TYPE: Journal
LANGUAGE: English

ED Entered STN: 24 Jan 1995

AB Calcium phosphate coatings were obtained on metal supports used in surgery or dentistry as implants, i.e., Mikromed (Cr-Co-Mo alloy), stainless steel (Fe-Cr-Ni) or titanium WT-1-0. Prior to deposition, the samples were covered with silica sol-gel film and then soaked in natural or synthetic body fluid at 37°. Silica favors the phosphate precipitation on metal surfaces. Coatings were examined by FTIR spectroscopy, XRD and SEM anal.

IT 7758-87-4, Calcium phosphate
(calcium phosphate coating on metal implants from natural and synthetic body fluid)

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IT 1305-78-8, Calcium oxide, biological studies
1314-56-3, Phosphorus pentoxide, biological studies
(glass; calcium phosphate coating on metal implants from natural and synthetic body fluid)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS

CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 63-7 (Pharmaceuticals)

ST phosphate coating metal implant body fluid; calcium phosphate coating implant body fluid; dental implant phosphate coating body fluid; surgical implant phosphate coating body fluid

IT Dental materials and appliances

Prosthetic materials and Prosthetics

(implants, calcium phosphate coating on metal implants from natural and synthetic body fluid)

IT 1306-06-5, Hydroxylapatite 7758-87-4, Calcium phosphate
(calcium phosphate coating on metal implants from natural and

synthetic body fluid)
 IT 1305-78-8, Calcium oxide, biological studies 1313-59-3,
 Sodium oxide, biological studies 1314-56-3, Phosphorus
 pentoxide, biological studies 7631-86-9, Silica, biological studies
 (glass; calcium phosphate coating on metal implants from natural
 and synthetic body fluid)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS
 RECORD (1 CITINGS)

L36 ANSWER 27 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1995:277192 HCAPLUS Full-text

DOCUMENT NUMBER: 122:38916

ORIGINAL REFERENCE NO.: 122:7403a,7406a

TITLE: biofiber-cement compositions for surgical and
 dental prosthesis

INVENTOR(S): Li, Shipu; Luo, Zebo

PATENT ASSIGNEE(S): Wuhan Polytechnic University, Peop. Rep. China

SOURCE: Faming Zhuanli Shengqing Gongkai Shuomingshu

CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
CN 1081098	A	19940126	CN 1992-105781	19920708
			<--	
PRIORITY APPLN. INFO.:			CN 1992-105781	19920708
			<--	

ED Entered STN: 07 Jan 1995

AB Biofiber-cement compns. for surgical and dental prosthesis comprise: (A)
 biofibers containing Ca5(OH)(PO4)3 and Ca3(PO4)2, (B) biocements containing
 CaO 30-60, P2O5 10-30, SiO2 20-50, and CaF 0.3-3.1%, and (C) hardening agents
 containing (NH4)2HPO4 and/or (NH4)H2PO4 at a ratio of 0.1-0.3 : 1 : 0.3-0.6
 (biofiber: biocement: hardening agent). The prosthetics were biocompatible,
 durable, and readily moldable.

IT 1305-78-8, Calcium oxide (CaO), biological studies
 1314-56-3, Phosphorus oxide (P2O5), biological studies
 7758-87-4, Calcium phosphate [Ca3(PO4)2]
 (biofiber-cement compns. for surgical and dental
 prosthesis)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS

CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IPCI A61K0006-033 [ICM,5]; A61K0006-02 [ICM,5,C*]; A61L0027-00 [ICS,5];
 A61L0031-00 [ICS,5]
 IPCR A61K0006-02 [I,C*]; A61K0006-033 [I,A]; A61L0027-00 [I,C*];
 A61L0027-00 [I,A]; A61L0031-00 [I,C*]; A61L0031-00 [I,A]
 CC 63-7 (Pharmaceuticals)
 ST biofiber cement surgical dental prosthesis
 IT Fibers
 (bio-; biofiber-cement compns. for surgical and dental
 prosthesis)
 IT Crosslinking agents
 Dental materials and appliances
 (biofiber-cement compns. for surgical and dental
 prosthesis)
 IT Prosthetic materials and Prosthetics
 (surgical; biofiber-cement compns. for surgical and dental
 prosthesis)
 IT Dental materials and appliances
 (cements, biofiber-cement compns. for surgical and dental
 prosthesis)
 IT 1305-78-8, Calcium oxide (CaO), biological studies
 1314-56-3, Phosphorus oxide (P2O5), biological studies
 7631-86-9, Silica, biological studies 7722-76-1, Ammonium dihydrogen
 phosphate 7758-87-4, Calcium phosphate [Ca3(PO4)2]
 7783-28-0, Diammonium monohydrogen phosphate 7789-75-5, Calcium
 fluoride, biological studies 12167-74-7, Calcium hydroxide phosphate
 (Ca5(OH)(PO4)3)
 (biofiber-cement compns. for surgical and dental
 prosthesis)

L36 ANSWER 28 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1994:417950 HCAPLUS Full-text

DOCUMENT NUMBER: 121:17950

ORIGINAL REFERENCE NO.: 121:3307a,3310a

TITLE: Effective formulations for the
preparation of calcium phosphate bone cementsAUTHOR(S): Driessens, F. C. M.; Boltong, M. G.; Bermudez, O.;
Planell, J. A.; Ginebra, M. P.; Fernandez, E.CORPORATE SOURCE: Dep. Mater. Sci. Metall., Univ. Politecnica
Cataluna, Barcelona, 08028, SpainSOURCE: Journal of Materials Science: Materials in
Medicine (1994), 5(3), 164-70
CODEN: JSMMEJ; ISSN: 0957-4530

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 09 Jul 1994

AB In the system CaO-P2O5-H2O, 13 different solids with varying Ca/P ratios are
known. In addition calcium phosphates containing other biocompatible
constituents like Na, or K, or Mg or Cl or carbonate, are known. Therefore, a
large number of combinations of such compds. is possible which might result in

the formation of calcium phosphate cements upon mixing with water. However, the number of calcium phosphates possibly formed by precipitation at room or body temps. is limited to 12, which should limit the number of suitable combinations. In this study, more than 450 different combinations of reactants were investigated. The results were evaluated on the basis of the following criteria: (a) was the intended reaction product formed (b) was the final setting time shorter than 60 min (c) was the compressive strength after soaking for 1 day in Ringer's solution at 37° >2 MPa. Fifteen formulations satisfied all of these criteria. The distribution of cements synthesized in this way was 3 DCPD type, 3 CMP type, 6 OCP type and 3 CDHA type cements. The DCPD type cements were acidic during setting and remained that for a long time afterwards. CDHA type cements were neutral or basic during setting, and remained neutral after completion of the reaction. The OCP type cements were neutral both during and after setting. Two CMP type cements were basic both during and after setting. In this study, compressive strengths were found up to 90 MPa. Also, in the literature values up to 90 MPa were reported for this type of cement. Taking into account the excellent biocompatibility and the good osteocond. of calcium phosphates and the fact that these calcium phosphate cements can be injected into the site of operation, it may be expected that these materials will become the materials of choice for bone replacement and augmentation. Their suitability for the fixation of metal endoprostheses for joint replacement should be investigated as well.

CC 63-7 (Pharmaceuticals)

Section cross-reference(s): 78

ST calcium phosphate bone cement formulation prepn

IT Medical goods

(bone cements, calcium phosphate, formulations for preparation of)

IT 1306-05-4, Fluorapatite 7789-77-7, Dicalcium phosphate dihydrate
25618-23-9, Calcium magnesium phosphate 59977-62-7 101363-21-7
109203-27-2

(bone cements, formulation evaluation for)

IT 1306-01-0P, Tetracalcium phosphate 1306-04-3P, Chlorapatite
1306-06-5P, Hydroxyapatite 1317-85-7P, Spodiosite 7758-87-4P,
Tricalcium phosphate 15555-25-6P, Rhenanite
18901-69-4P 88938-16-3P

(preparation of, for bone cements)

OS.CITING REF COUNT: 98 THERE ARE 98 CAPLUS RECORDS THAT CITE THIS
RECORD (101 CITINGS)

L36 ANSWER 29 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1993:175854 HCAPLUS Full-text

DOCUMENT NUMBER: 118:175854

ORIGINAL REFERENCE NO.: 118:30015a,30018a

TITLE: Dental and bone cements containing
calcium phosphate glass ceramic powder composites
with acrylate polymers

INVENTOR(S): Nagata, Norifumi; Yogoro, Takayuki; Yuta,
Sadayuki; Ueda, Masahiko

PATENT ASSIGNEE(S): Onoda Cement Co., Ltd., Japan; Sankin Industry Co.
Ltd.

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 04329960 A 19921118 JP 1991-100217 19910501
 <--
 PRIORITY APPLN. INFO.: JP 1991-100217 19910501
 <--

ED Entered STN: 01 May 1993

AB A devitrified glass powder and radical-polymerizable aromatic (meth)acrylate compds. with polymerization initiators are provided as dental and bone cements with good hardness and biocompatibility. The devitrified glass is composed of CaO, P2O5, Al2O3, SiO2, and F2 as essential ingredients and MgO, Na2O, and B2O3 as optional ingredients. Thus, a glass containing CaO 43.1, P2O5 18.6, Al2O3 11.9, SiO2 20.9, F2 5.0, and MgO 0.5% was melted at 1600° for 2 h and cooled rapidly, and powdered. The powder (average diameter 5µm) was surface treated with γ-methacryloxypropyltrimethoxysilane and mixed with benzoyl peroxide to give a powder A. Sep., triethylene glycol dimethacrylate 50, 2-hydroxyethyl methacrylate 50, N,N-dimethyl-p-toluidine 1, and hydroquinone 0.02g were mixed to give a liquid B. The powder A and liquid B were mixed at the ratio of 3:1 and the product showed a compression strength of 2000 kg/cm2.

IT 1305-78-8, Calcium oxide, biological studies
 1314-56-3, Phosphorus pentoxide, biological studies
 7758-87-4, Tricalcium phosphate

(glass ceramics containing, composites with polymethacrylates, in dental and bone cements)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS

CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IPCI A61L0025-00 [ICM,5]; A61K0006-033 [ICS,5]; A61K0006-08 [ICS,5];
 A61K0006-02 [ICS,5,C*]

IPCR A61K0006-02 [I,C*]; A61K0006-033 [I,A]; A61K0006-08 [I,A]; A61L0024-00 [I,C*]; A61L0024-00 [I,A]

CC 63-7 (Pharmaceuticals)

ST bone cement polymethacrylate composite calcium phosphate;

dental cement polymethacrylate composite glass ceramic

IT Aluminosilicates, biological studies

Apatite-group minerals

(glass ceramics containing, composites with polymethacrylates, in

dental and bone cements)

IT Dental materials and appliances
(cements, calcium phosphate devitrified glass powder composites
with polymethacrylates for)

IT 73376-51-9 146786-83-6 146814-91-7
(composites with calcium phosphate glass ceramics, in
dental and bone cements)

IT 1303-86-2, Boric oxide, biological studies 1305-78-8,
Calcium oxide, biological studies 1306-06-5, Hydroxyapatite
1309-48-4, Magnesia, biological studies 1313-59-3, Sodium oxide,
biological studies 1314-56-3, Phosphorus pentoxide,
biological studies 1344-28-1, Alumina, biological studies
7631-86-9, Silica, biological studies 7758-87-4,
Tricalcium phosphate 7782-41-4, Fluorine, biological studies
10103-46-5, Calcium phosphate
(glass ceramics containing, composites with polymethacrylates, in
dental and bone cements)

L36 ANSWER 30 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1993:44322 HCAPLUS Full-text
DOCUMENT NUMBER: 118:44322
ORIGINAL REFERENCE NO.: 118:7903a,7906a
TITLE: Composite ceramics and their preparations
INVENTOR(S): Kasuga, Tomoko; Kasuga, Toshihiro
PATENT ASSIGNEE(S): Hoya Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 04254439	A	19920909	JP 1991-31539	19910131
			<--	
PRIORITY APPLN. INFO.:			JP 1991-31539	19910131
			<--	

ED Entered STN: 03 Feb 1993

AB The ceramics comprise crystallized glass and ZrO₂ matrix. Glass powder which shows mica crystal precipitation by heat treatment is mixed with ZrO₂-based ceramic powder, heat-sintered, and heat-crystallized to give composite ceramics. The ceramics have excellent machinability, mold-releasability, and heat resistance, and can be used as dental prosthetics.

IT 7758-87-4, Tricalcium phosphate
(crystal, glass containing, composite with zirconia ceramics)

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



IT 1314-56-3, Phosphorus oxide (p2o5), uses
(crystallized glass, composite with zirconia ceramics)
RN 1314-56-3 HCAPLUS
CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 1305-78-8, Calcia, uses
(glass containing, crystallized, composite with zirconia ceramics)
RN 1305-78-8 HCAPLUS
CN Calcium oxide (CaO) (CA INDEX NAME)

Ca==O

IPCI C03C0014-00 [ICM,5]; C03B0032-00 [ICS,5]; C03C0010-06 [ICS,5];
C03C0010-00 [ICS,5,C*]
IPCR C03B0032-00 [I,C*]; C03B0032-00 [I,A]; C03C0003-062 [I,C*];
C03C0003-062 [I,A]; C03C0003-076 [I,C*]; C03C0003-112 [I,A];
C03C0003-118 [I,A]; C03C0004-00 [I,C*]; C03C0004-00 [I,A]; C03C0010-00
[I,C*]; C03C0010-00 [I,A]; C03C0010-06 [I,A]; C03C0012-00 [I,C*];
C03C0012-00 [I,A]; C03C0014-00 [I,C*]; C03C0014-00 [I,A]
CC 57-2 (Ceramics)
Section cross-reference(s): 63
IT Dental materials and appliances
(composite ceramics for, zirconia-glass ceramics)
IT 1302-50-7, Celsius 1302-54-1, Anorthite 7758-87-4,
Tricalcium phosphate 14483-19-3, Diopside 14681-78-8, Enstatite
14940-68-2, Zircon 15118-03-3, Forsterite 17068-76-7, Richterite
(crystal, glass containing, composite with zirconia ceramics)
IT 1304-28-5, Barium oxide, uses 1314-11-0, Strontium oxide, uses
1314-56-3, Phosphorus oxide (p2o5), uses
(crystallized glass, composite with zirconia ceramics)
IT 1305-78-8, Calcia, uses 1309-48-4, Magnesia, uses
1313-59-3, Sodium oxide, uses 7782-41-4, Fluorine, uses
12136-45-7, Potassium oxide, uses
(glass containing, crystallized, composite with zirconia ceramics)

L36 ANSWER 31 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1992:201192 HCAPLUS Full-text
DOCUMENT NUMBER: 116:201192
ORIGINAL REFERENCE NO.: 116:33949a,33952a
TITLE: Calcium phosphate coating materials for artificial
bone
INVENTOR(S): Irie, Hiroyuki; Hakamazuka, Koji
PATENT ASSIGNEE(S): Olympus Optical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04038959	A	19920210	JP 1990-145398	19900605

<--

JP 2989852 B2 19991213 JP 1990-145398 19900605
 PRIORITY APPLN. INFO.: <--

ED Entered STN: 16 May 1992
 AB A material for the artificial bone is a Ti-type metal, coated with Ca phosphate, which is crystalline glass powder, and fired. The crystalline glass consists of Li2O, K2O, or Na2O 0-10, CaO 30-50, TiO2 0-20, Al2O3 0-25, SiO2 0-20, and P2O5 20-50 mol %.
 IT 7758-87-4, β -Tricalcium phosphate
 (coating material containing, for artificial bone)
 RN 7758-87-4 HCAPLUS
 CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IT 1305-78-8, Calcium oxide, biological studies
 1314-56-3, Phosphorus pentoxide, biological studies
 (crystalline glass containing, in coating material for artificial bone)
 RN 1305-78-8 HCAPLUS
 CN Calcium oxide (CaO) (CA INDEX NAME)



RN 1314-56-3 HCAPLUS
 CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IPCI A61L0027-00 [ICM,5]; A61C0008-00 [ICS,5]; A61F0002-28 [ICS,5];
 A61F0002-30 [ICS,5]
 IPCR A61C0008-00 [I,C*]; A61C0008-00 [I,A]; A61F0002-28 [I,C*]; A61F0002-28 [I,A]; A61F0002-30 [I,C*]; A61F0002-30 [I,A]; A61L0027-00 [I,C*];
 A61L0027-00 [I,A]
 CC 63-7 (Pharmaceuticals)
 IT Dental materials and appliances
 (coating materials containing crystalline glass for)
 IT 7758-87-4, β -Tricalcium phosphate
 (coating material containing, for artificial bone)
 IT 1305-78-8, Calcium oxide, biological studies 1313-59-3,
 Sodium oxide, biological studies 1314-56-3, Phosphorus
 pentoxide, biological studies 1344-28-1, Alumina, biological studies
 7631-86-9, Silica, biological studies 12057-24-8, Lithium oxide,
 biological studies 12136-45-7, Potassium oxide, biological studies
 13463-67-7, Titanium oxide, biological studies
 (crystalline glass containing, in coating material for artificial bone)

L36 ANSWER 32 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1991:639819 HCAPLUS Full-text
 DOCUMENT NUMBER: 115:239819
 ORIGINAL REFERENCE NO.: 115:40737a,40740a
 TITLE: Ceramic bone-prosthetics for surgical and dental use
 INVENTOR(S): Hakamazuka, Koji; Irie, Hiroyuki
 PATENT ASSIGNEE(S): Olympus Optical Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03178652	A	19910802	JP 1989-318230	19891207
JP 2951342	B2	19990920	<--	
PRIORITY APPLN. INFO.:			JP 1989-318230	19891207
			<--	

ED Entered STN: 29 Nov 1991

AB The title bone-prosthetics consist of a porous layer having 40-80% porosity and a dense layer having <50% porosity. The porous layer is made of calcium phosphate compound, hydroxyapatite-containing tricalcium phosphate; and/or Ca- and P-containing glass prepared by the wet-type pulverization-mixing method and having a Ca/P ratio of 1.40-1.70. The dense layer is made of e.g. calcium phosphate compound prepared by the wet-type pulverization-mixing method and having a Ca/P ratio of 1.4-1.7. Thus, β -tricalcium phosphate (β -TCP) powder and a glass powder containing Na₂O, CaO, P₂O₅ and Al₂O₃ (10:40:45:5 mol%) at a mol. ratio of 40:60 were mixed, and 30 g of the mixture was blended with water, foaming agent, and foam stabilizer (16:4:17 mL) to give composition A for the porous layer. Sep., β -TCP powder (30 g) was mixed with water 10, foaming agent 2 and foam stabilizer 17 mL to give composition B for the dense layer. Composition A and composition B were sep. poured into a container to form a 2-layer structure, which was dried at 30-40° for 1 day and sintered at 1100° for 15 h to give a bone implant. The preparation was biocompatible. IPCI A61F0002-38 [ICM,5]; A61L0027-00 [ICS,5]

IPCR A61L0027-00 [I,C*]; A61L0027-00 [I,A]; A61F0002-28 [I,C*]; A61F0002-28 [I,A]; A61F0002-38 [I,C*]; A61F0002-38 [I,A]

CC 63-7 (Pharmaceuticals)

Section cross-reference(s): 57

IT Dental materials and appliances

(ceramics, calcium phosphate-containing, two-phase)

IT Prosthetic materials and Prosthetics

(ceramics, calcium phosphate-containing, two-phase, for surgical and dental use)

IT Dental materials and appliances

(implants, calcium phosphate ceramics for, two-phase)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L36 ANSWER 33 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1991:614938 HCAPLUS Full-text

DOCUMENT NUMBER: 115:214938

ORIGINAL REFERENCE NO.: 115:36551a,36554a

TITLE: Coating of biological implants

INVENTOR(S): Kawai, Takao; Shibata, Shinji

PATENT ASSIGNEE(S): Kobe Steel, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03149060	A	19910625	JP 1989-289092	19891106
			<--	
PRIORITY APPLN. INFO.:			JP 1989-289092	19891106
			<--	

ED Entered STN: 15 Nov 1991

AB A metallic material is coated with a slurry containing Ca phosphate-type crystallized glass powder and Ca phosphate-type amorphous glass powder, dried, and heated below the modification temperature of the metal to give a material useful in manufacturing artificial bone. Thus, a glass containing CaO 45, P2O5 16, SiO2 35 %, B2O3 and Na2O balance was melted, subsequently pulverized ($\leq 10 \mu\text{m}$). A portion of this powder was divided in 2 parts, and one part was heated at 1050° to give apatite and wollastonite, while another part was heated at 1150° to give β -Ca3(P04)2, apatite and wollastonite. The products were pulverized to 3 μm and mixed with the unheated portion of the glass (1:1), and with a binder and water to give a slurry as a coating material for a porous Ti alloy. The coated metal was dried and heated at 950° for 2 h under 10-4 torr pressure to give a bone substitute. IPCI A61L0027-00 [ICM,5]; A61C0008-00 [ICS,5]
 IPCR A61C0008-00 [I,C*]; A61C0008-00 [I,A]; A61L0027-00 [I,C*]; A61L0027-00 [I,A]

CC 63-7 (Pharmaceuticals)

IT Dental materials and appliances

(implants, manufacture of, glass-coated metals for)

IT Titanium alloy, base

(porous, calcium phosphate coating on, for artificial bone manufacture)

IT 7758-87-4, β -Tricalcium phosphate

13983-17-0, Wollastonite
 (coating materials containing, on metals for manufacturing artificial bone)

L36 ANSWER 34 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1990:84255 HCAPLUS Full-text

DOCUMENT NUMBER: 112:84255

ORIGINAL REFERENCE NO.: 112:14259a,14262a

TITLE: Process and molding materials for manufacture of glass ceramic dental materials with improved physical and aesthetic properties

INVENTOR(S): Matsui, Akira; Shibuya, Takehiro; Morita, Yoshinori; Kishimoto, Atsushi; Yamanaka, Akihiko
 PATENT ASSIGNEE(S): Colcoat Co., Ltd., Japan; Nippon Electric Glass Co., Ltd.

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01093439	A	19890412	JP 1987-247979	19871002
			<--	

PRIORITY APPLN. INFO.:

JP 1987-247979

19871002

<--

ED Entered STN: 03 Mar 1990

AB The title glass ceramics are prepared by casting a glass ceramic composition in a mold formed with silicic acid sols as binders, curing agents, and fire-resistant materials. Thus, a composition containing 13 mL hydrolyzed Et silicate in alc., 1 mL aqueous 1% (NH₄)₂CO₃, and 50 g 60:40 mixture of α -crystobalite and α -quartz was molded in a paraffin form, cured, dewaxed, and fired 0.5-1 h at 900° to give a mold. A glass composition containing SiO₂ 50.5, P₂O₅ 7.0, Al₂O₃ 18.0, MgO 5.0, CaO 14.0, Li₂O 2.5, and TiO₂ 3.0% was cast in this mold and crystallized 30-120 min at 750-950° to give a tusk with good aesthetic quality and bending strength 1500 kg/m² and Knoop hardness 600, vs. 1200 and 350, resp., for an enamel layer.

IT 1305-78-8, Calcium oxide, biological studies 1314-56-3, Phosphorus pentoxide, biological studies 7758-87-4, β -Tricalcium phosphate
(glass ceramics containing, for dental materials with improved phys. and aesthetic properties)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS

CN Phosphorus oxide (P₂O₅) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IPCI C03C0010-00 [ICM,4]

IPCR C03C0010-00 [I,C*]; C03C0010-00 [I,A]

CC 63-7 (Pharmaceuticals)

Section cross-reference(s): 57

ST glass ceramic dental material manuf; mold casting

glass ceramic tooth

IT Apatite-group minerals

Mica-group minerals, biological studies

(glass ceramics containing, for dental materials with

improved phys. and aesthetic properties)

IT Dental materials and appliances

(glass ceramics, with improved phys. and aesthetic properties, molds for)

- IT 11099-06-2D, Ethyl silicate, hydrolyzed
(binders, molds containing, for manufacture of glass ceramic dental materials)
- IT 1305-78-8, Calcium oxide, biological studies 1309-48-4, Magnesium oxide, biological studies 1314-56-3, Phosphorus pentoxide, biological studies 7758-87-4, β -Tricalcium phosphate 7789-75-5, Calcium fluoride, biological studies 12032-30-3, Magnesium titanate 12057-24-8, Lithium oxide, biological studies 13477-39-9, Calcium metaphosphate 13983-17-0, Wollastonite 14483-19-3, Diopside
(glass ceramics containing, for dental materials with improved phys. and aesthetic properties)
- IT 14464-46-1, Cristobalite (SiO₂) 14808-60-7, α -Quartz, biological studies
(molds containing, for manufacture of glass ceramic dental materials)
- IT 19497-94-0
(β -eucryptite, glass ceramics containing, for dental materials with improved phys. and aesthetic properties)
- IT 12068-40-5
(β -spodumene, glass ceramics containing, for dental materials with improved phys. and aesthetic properties)

L36 ANSWER 35 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1990:11956 HCAPLUS Full-text

DOCUMENT NUMBER: 112:11956

ORIGINAL REFERENCE NO.: 112:2127a,2130a

TITLE: Biologically compatible composite ceramics for artificial bones and tooth roots, and their manufacture

INVENTOR(S): Kasuga, Toshihiro; Nakajima, Kiichi

PATENT ASSIGNEE(S): Hoya Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 01115360	A	19890508	JP 1987-271677	19871029
			<--	
JP 06022574	B	19940330		
PRIORITY APPLN. INFO.:			JP 1987-271677	19871029
			<--	

ED Entered STN: 06 Jan 1990

AB The title ceramics with high bending strength are prepared by heat treating compns. containing powders (A) comprising 1-100% partially stabilized zirconia and 99-0% α -alumina, and 5-50 volume% glass powders comprising $\geq 90\%$ mixts. of CaO 12-56, P₂O₅ 1-27, SiO₂ 22-50, MgO 0-34, and Al₂O₃ 0-25% to form apatite crystals and crystals of wollastonite, diopside, forsterite, okermanite, and/or anorthite, and subsequently heat treating the materials at the sintering temperature of A powders. Thus, a 80:20 (volume ratio) mixture of powder containing stabilized zirconia containing 3 mol% Y₂O₃ and α -alumina at 50:50 weight ratio, and glass powder was heated from room temperature to 1200° at 3°/min at 300 kg/cm² and held 2 h at 1200° to give a biocompatible

composite ceramic containing crystals of apatite and wollastonite and having bending strength 15,000 kg/cm².

IT 7758-87-4, Tricalcium phosphate
(ceramic composites containing apatites and, with high bending strength, for prosthetic implants)
RN 7758-87-4 HCAPLUS
CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IT 1305-78-8, Calcium oxide, biological studies 1314-56-3, Phosphorus pentoxide, biological studies
(glass ceramics containing, composites with zirconia and alumina, for prosthetic implants with high bending strength)
RN 1305-78-8 HCAPLUS
CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS
CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IPCI A61L0027-00 [ICM,4]; A61K0006-00 [ICS,4]; C04B0035-10 [ICS,4];
C04B0035-48 [ICS,4]
IPCR C04B0035-10 [I,C*]; C04B0035-10 [I,A]; A61K0006-00 [I,C*]; A61K0006-00 [I,A]; A61K0006-02 [I,C*]; A61K0006-033 [I,A]; A61L0027-00 [I,C*];
A61L0027-00 [I,A]; C04B0035-48 [I,C*]; C04B0035-48 [I,A]

CC 63-7 (Pharmaceuticals)

Section cross-reference(s): 57

IT Dental materials and appliances

(artificial roots, glass-alumina-zirconia ceramic composites with high bending strength for)

IT 7758-87-4, Tricalcium phosphate
(ceramic composites containing apatites and, with high bending strength, for prosthetic implants)

IT 1305-78-8, Calcium oxide, biological studies 1309-48-4, Magnesium oxide, biological studies 1313-96-8, Niobium oxide 1314-11-0, Strontium oxide, biological studies 1314-56-3, Phosphorus pentoxide, biological studies 7782-41-4, Fluorine, biological studies 13463-67-7, Titanium dioxide, biological studies 59763-75-6, Tantalum oxide
(glass ceramics containing, composites with zirconia and alumina, for prosthetic implants with high bending strength)

L36 ANSWER 36 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1990:11955 HCAPLUS Full-text

DOCUMENT NUMBER: 112:11955

ORIGINAL REFERENCE NO.: 112:2127a,2130a

TITLE: Biologically compatible composite ceramics for artificial bones and tooth roots, and their manufacture

INVENTOR(S): Kasuga, Toshihiro; Nakajima, Kiichi

PATENT ASSIGNEE(S): Hoya Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01115361	A	19890508	JP 1987-271678	19871029

<--

PRIORITY APPLN. INFO.: JP 1987-271678 19871029

<--

ED Entered STN: 06 Jan 1990

AB The title ceramics with high bending strength are prepared by heat treating compns. containing alumina powders and 5-50 volume% glass powders comprising $\geq 90\%$ mixture of CaO 12-56, P2O5 1-27, SiO2 22-50, MgO 0-34, and Al2O3 0-25% so as to form apatite crystals and crystals of wollastonite, diopside, farsterite, okermanite, and/or anorthite, and subsequently heat treating the materials at the sintering temperature of alumina. Thus, a 80:20 (volume ratio) mixture of alumina powder and glass powder containing CaO 47.8, P2O5 6.5, SiO2 44.0, MgO 1.5, and H2 0.2 weight% was heated from room temperature to 1300° at 3°/min at 300 kg/cm2 and held 2 h at 1300° to give a biol. compatible composite ceramic containing crystals of apatite and wollastonite and having bending strength 4500 kg/cm2.

IT 7758-87-4, Tricalcium phosphate
(ceramic composites containing apatite and, with high bending strength, for implants)

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IT 1305-78-8, Calcium oxide, biological studies 1314-56-3, Phosphorus pentoxide, biological studies
(glass ceramics containing, composites with alumina, for implants)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS
 CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IPCI A61L0027-00 [ICM,4]; A61K0006-00 [ICS,4]; C04B0035-10 [ICS,4]
 IPCR A61K0006-00 [I,C*]; A61K0006-00 [I,A]; A61K0006-02 [I,C*];
 A61K0006-027 [I,A]; A61L0027-00 [I,C*]; A61L0027-00 [I,A]; C04B0035-10
 [I,C*]; C04B0035-10 [I,A]

CC 63-7 (Pharmaceuticals)

Section cross-reference(s): 57

IT Dental materials and appliances

(artificial roots, glass-alumina ceramic composites with high
 bending strength for)

IT 1302-54-1, Anorthite 7758-87-4, Tricalcium

phosphate 13983-17-0, Wollastonite 14483-19-3, Diopside

14567-90-9, Okermanite 15118-03-3, Forsterite (Mg2(SiO4))

(ceramic composites containing apatite and, with high bending strength,
 for implants)

IT 1305-78-8, Calcium oxide, biological

studies 1309-48-4, Magnesium oxide, biological studies 1313-96-8,

Niobium oxide 1314-11-0, Strontium oxide, biological studies

1314-23-4, Zirconium oxide, biological studies 1314-36-9, Yttrium

oxide, biological studies 1314-56-3, Phosphorus pentoxide,

biological studies 1314-61-0, Tantalum oxide (Ta2O5) 7782-41-4,

Fluorine, biological studies 12057-24-8, Lithium oxide, biological

studies 13463-67-7, Titanium dioxide, biological studies

(glass ceramics containing, composites with alumina, for implants)

L36 ANSWER 37 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1989:580771 HCAPLUS Full-text

DOCUMENT NUMBER: 111:180771

ORIGINAL REFERENCE NO.: 111:29975a,29978a

TITLE: Surface modification of crystallized glass
 prosthetic implants for improved biological
 compatibility

INVENTOR(S): Kasuga, Toshihiro

PATENT ASSIGNEE(S): Hoya Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63270061	A	19881108	JP 1987-106068	19870428
			<--	
US 4871384	A	19891003	US 1988-187457	19880428
			<--	
PRIORITY APPLN. INFO.:			JP 1987-106068	A 19870428
			<--	

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 10 Nov 1989

- AB Inorg. prosthetic materials containing CaO and P2O5 are treated with aqueous solns. containing Ca and/or H3PO4 at 10-200° to cause salting out of Ca phosphate crystals on the surface. Thus, a glass composition containing CaO 44.7, B2O5 16.3, SiO2 34.2, MgO 4.6, and F 0.2% was melted, pulverized, pressed, and heat treated 2 h at 1150°. This glass was then treated with aqueous 5% H3PO4 for 120 h at 37° to give a crystallized glass with the surface containing salted-out crystals of apatite, wollastonite, and diopside.
- IT 7758-87-4, Tricalcium β -phosphate
(formation of, on glass ceramic prosthetics, for improved biocompatibility)
- RN 7758-87-4 HCAPLUS
- CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

- IT 1314-56-3, Phosphorus oxide (P2O5), biological studies
(glass ceramic containing, surface treatment with calcium compds. or phosphoric acid, for prosthetics)
- RN 1314-56-3 HCAPLUS
- CN Phosphorus oxide (P2O5) (CA INDEX NAME)
- *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
- IT 1305-78-8, Calcium oxide, biological studies
(glass ceramic prosthetic materials treatment with, for improved biocompatibility)
- RN 1305-78-8 HCAPLUS
- CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

- IPCI A61L0027-00 [ICM,4]; A61C0008-00 [ICS,4]
- IPCR A61C0008-00 [I,C*]; A61C0008-00 [I,A]; A61F0002-00 [N,C*]; A61F0002-00 [N,A]; A61L0027-00 [I,C*]; A61L0027-00 [I,A]; A61L0027-12 [I,A]; C03C0010-00 [I,C*]; C03C0010-02 [I,A]; C03C0014-00 [I,C*]; C03C0014-00 [I,A]; C03C0017-22 [I,C*]; C03C0017-22 [I,A]; C03C0023-00 [I,C*]; C03C0023-00 [I,A]
- CC 63-7 (Pharmaceuticals)
Section cross-reference(s): 57
- IT Dental materials and appliances
(glass ceramics, surface modification in, for improved biocompatibility)
- IT 1302-54-1, Anorthite 1314-23-4, Zirconia, biological studies
7758-87-4, Tricalcium β -phosphate 7782-41-4, Fluorine,
biological studies 10103-46-5 12057-24-8, Lithium oxide,
properties 14483-19-3, Diopside 14567-90-9, Okermanite
15118-03-3, Forsterite

(formation of, on glass ceramic prosthetics, for improved biocompatibility)

- IT 1309-48-4, Magnesium oxide, biological studies 1313-96-8, Niobium oxide (Nb2O5) 1314-11-0, Strontium oxide, biological studies 1314-36-9, Yttrium oxide, biological studies 1314-56-3, Phosphorus oxide (P2O5), biological studies 59763-75-6, Tantalum oxide
(glass ceramic containing, surface treatment with calcium compds. or phosphoric acid, for prosthetics)
- IT 62-54-4, Calcium diacetate 471-34-1, Calcium carbonate, biological studies 563-72-4 814-80-2 1305-78-8, Calcium oxide, biological studies 7664-38-2, Phosphoric acid, biological studies 7783-28-0, Diammonium hydrogen phosphate 7789-78-8, Calcium hydride 10043-52-4, Calcium chloride, biological studies 10124-37-5, Calcium nitrate
(glass ceramic prosthetic materials treatment with, for improved biocompatibility)
- OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD (7 CITINGS)

L36 ANSWER 38 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 1987:561742 HCAPLUS Full-text
DOCUMENT NUMBER: 107:161742
ORIGINAL REFERENCE NO.: 107:25897a,25900a
TITLE: Surgical cements
INVENTOR(S): Bajpai, Praphulla K.
PATENT ASSIGNEE(S): University of Dayton, USA
SOURCE: U.S., 5 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4668295	A	19870526	US 1985-726868	19850425
			<--	
PRIORITY APPLN. INFO.:			US 1985-726868	19850425
			<--	

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 31 Oct 1987

AB Surgical bone repair cements useful in medical and/or dental applications comprise a bone substitute such as hydroxyapatite (HA), β -Ca3(P04)2 (TCP) or aluminocalcium oxide-P205 (ALCAP) ceramic and a polyfunctional carboxylic acid such as malic acid or α -ketoglutaric (KGA) acid as a setting agent. Hardness and setting times were evaluated for various compns. Bone cements from ALCAP (-400 mesh)/KGA (2:1), ALCAP (-400 mesh), HA (40-50 mesh)/KGA (2:1), HA (spray dried)/KGA 2:1, HA (spray dried), and TCP/KGA (2:1) were used to fill drill holes in tibias of rabbits. All materials studied remained in place sufficiently for tissue ingrowth to occur. All showed some degree of trabecular bone ingrowth comparable to that observed in controls (empty holes and holes filled with dry uncured bone substitute). None exhibited extensive inflammatory response or noticeably inhibited bone ingrowth. The use of KGA as a setting agent had no noticeable effect on tissue response.

- IT 7758-87-4, Calcium phosphate (Ca3(P04)2)
(bone cement from polyfunctional carboxylic acids and β -)
- RN 7758-87-4 HCAPLUS
- CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

IT 1305-78-8, Calcium oxide, biological studies
 1314-56-3, Phosphorus pentoxide, biological studies
 (bone cements from polyfunctional carboxylic acids and ceramics
 containing)
 RN 1305-78-8 HCAPLUS
 CN Calcium oxide (CaO) (CA INDEX NAME)

Ca=O

RN 1314-56-3 HCAPLUS
 CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

INCL 106085000

IPCI C04B0007-32 [ICM,4]; C04B0007-00 [ICM,4,C*]

IPCR A61K0006-02 [I,C*]; A61K0006-083 [I,A]; A61L0024-00 [I,C*];

A61L0024-00 [I,A]; C04B0028-00 [I,C*]; C04B0028-28 [I,A]

NCL 106/690.000; 106/243.000; 106/696.000; 524/005.000; 623/023.620

CC 63-7 (Pharmaceuticals)

IT 7758-87-4, Calcium phosphate (Ca3(PO4)2)

(bone cement from polyfunctional carboxylic acids and β-)

IT 1305-78-8, Calcium oxide, biological studies

1314-56-3, Phosphorus pentoxide, biological studies

1344-28-1, Aluminum oxide, biological studies

(bone cements from polyfunctional carboxylic acids and ceramics
 containing)OS.CITING REF COUNT: 10 THERE ARE 10 CAPLUS RECORDS THAT CITE THIS
 RECORD (10 CITINGS)REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L36 ANSWER 39 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1986:614119 HCAPLUS Full-text

DOCUMENT NUMBER: 105:214119

ORIGINAL REFERENCE NO.: 105:34437a,34440a

TITLE: Manufacture of highly crystallized glass
 containing crystals of β-tricalcium
 phosphate and anorthite

INVENTOR(S): Kasuga, Toshihiro; Nakagawa, Kenji

PATENT ASSIGNEE(S): Hoya Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 61141641	A	19860628	JP 1984-260037	19841211
			<--	
JP 02047419	B	19901019		
US 4643982	A	19870217	US 1985-804517	19851204
			<--	
PRIORITY APPLN. INFO.:			JP 1984-255848	A 19841205
			<--	
			JP 1984-260037	A 19841211
			<--	

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 13 Dec 1986

AB The title glass is prepared by heating a >200-mesh glass powder containing MgO 8-26, CaO 18-43, SiO₂ 25-40, P₂O₅ 10-25, Al₂O₃ 10-25, Li₂O 0-10, Na₂O 0-10, K₂O 0-10, B₂O₃ 0-10, TiO₂ 0-10, ZrO₂ 0-10, SrO 0-10, Nb₂O₅ 0-10, and Ta₂O₅ 0-10% at the sintering temperature of the glass. The total content of MgO, CaO, SiO₂, P₂O₅, and Al₂O₃ is >90%. Thus, mixts. of oxides, carbonates, phosphates and hydrates were melted at 1400-1550° for 30-60 min, quenched, ground to >300 mesh, mixed with 5 weight % paraffin, pressed into shape at 5000 kg/cm², and heated at 1000-1100° for 2 h to obtain crystallized glasses. Glasses of the invention containing crystals of β -tricalcium phosphate, anorthite, and ≥ 1 of diopside, forsterite, and akermanite had bending strengths of 1700-2300 kg/cm² and are useful as artificial bone or tooth materials. IPCI C03C0010-00 [ICM,4]; A61K0006-02 [ICA,4]; A61L0027-00 [ICA,4];

C03C0003-062 [ICA,4]
 IPCR C03C0010-00 [I,C*]; C03C0010-00 [I,A]; A61K0006-02 [I,C*]; A61K0006-02 [I,A]; A61K0006-033 [I,A]; A61L0027-00 [I,C*]; A61L0027-00 [I,A]; C03C0003-062 [I,C*]; C03C0003-062 [I,A]; C03C0010-02 [I,A]; C03C0010-04 [I,A]; C03C0010-06 [I,A]

CC 63-7 (Pharmaceuticals)

Section cross-reference(s): 57

ST tricalcium phosphate cryst glass; anorthite cryst glass; diopside cryst glass; forsterite cryst glass; akermanite cryst glass; cryst glass bone prosthetic; tooth material cryst glass

IT Glass, oxide

(crystalline, containing β -tricalcium phosphate and anorthite crystals, manufacture of, as artificial bone and tooth material)

IT Dental materials and fillings

(glass containing crystals of β -tricalcium phosphate and anorthite)

IT Bone

(artificial, glass containing crystals of β -tricalcium phosphate and anorthite)

OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)

L36 ANSWER 40 OF 40 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1981:466525 HCAPLUS Full-text

DOCUMENT NUMBER: 95:66525

ORIGINAL REFERENCE NO.: 95:11171a,11174a

TITLE: Preparation of CaO-P₂O₅ oriented polycrystalline ceramics by unidirectional solidification of their

melts
 AUTHOR(S): Kokubo, Tadashi; Nagashima Yukihito; Ito, Setsuro;
 Tashiro, Megumi
 CORPORATE SOURCE: Inst. Chem. Res., Kyoto Univ., Uji, Japan
 SOURCE: Kenkyu Hokoku - Asahi Garasu Kogyo Gijutsu
 Shoreikai (1980), 37, 313-26
 CODEN: AGKGAA; ISSN: 0365-2599

DOCUMENT TYPE: Journal
 LANGUAGE: Japanese

ED Entered STN: 12 May 1984

AB The preparation of polycryst. CaO-P2O5 ceramics with high mech. strength, which are of potential use as artificial bones was investigated using a unidirectional solidification method. Melts of 2CaO.P2O5-3CaO.P2O5 eutectic composition were solidified upward at constant rates of 2-20 mm/h in a Pt crucible placed in a SiC elec. furnace with a temperature gradient of 20°/cm. The temperature at the top of the melt was kept at <1350° to suppress P2O5 vaporization. Minute seed crystals of eutectic composition placed at the bottom of the melts were used. The resulting pore-free ingot contained highly oriented 3CaO.P2O5 crystals of lamellar structure, aligned parallel to the solidification direction, and embedded in a matrix of highly oriented 2CaO.P2O5 crystals.

IT 1314-56-3, uses and miscellaneous
 (ceramics containing calcium oxide and, oriented polycryst.)

RN 1314-56-3 HCAPLUS

CN Phosphorus oxide (P2O5) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 1305-78-8, uses and miscellaneous
 (ceramics containing phosphorus pentoxide and, oriented polycryst.)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (CA INDEX NAME)

Ca==O

IT 7758-87-4P
 (ceramics, oriented polycryst., preparation by unidirectional solidification)

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (CA INDEX NAME)



● 3/2 Ca

CC 57-7 (Ceramics)

Section cross-reference(s): 63

IT 1314-56-3, uses and miscellaneous
 (ceramics containing calcium oxide and, oriented polycryst.)

- IT 1395-78-8, uses and miscellaneous
(ceramics containing phosphorus pentoxide and, oriented polycryst.)
- IT 7758-87-4P 7790-76-3P
(ceramics, oriented polycryst., preparation by unidirectional
solidification)

=> d his nofile

(FILE 'HOME' ENTERED AT 07:48:23 ON 03 AUG 2010)

FILE 'HCAPLUS' ENTERED AT 07:48:56 ON 03 AUG 2010

L1 0 SEA SPE=ON ABB=ON PLU=ON US20040019385/PN
L2 0 SEA SPE=ON ABB=ON PLU=ON US20020062154/PN

FILE 'WPIX' ENTERED AT 07:50:05 ON 03 AUG 2010

L3 2 SEA SPE=ON ABB=ON PLU=ON (L1 OR L2)

FILE 'REGISTRY' ENTERED AT 07:50:33 ON 03 AUG 2010

E TRICALCIUM PHOSPHATE/CN
L4 1 SEA SPE=ON ABB=ON PLU=ON "TRICALCIUM PHOSPHATE"/CN
E CALCIUM OXIDE/CN
L5 1 SEA SPE=ON ABB=ON PLU=ON "CALCIUM OXIDE"/CN
E PHOSPHOROUS PENTOXIDE/CN
L6 1 SEA SPE=ON ABB=ON PLU=ON 1314-56-3/RN

FILE 'HCAPLUS' ENTERED AT 07:53:10 ON 03 AUG 2010

L7 12734 SEA SPE=ON ABB=ON PLU=ON L4
L8 QUE SPE=ON ABB=ON PLU=ON TRICALCIUM PHOSPHAT? OR
TRICALCIUMPHOSPHAT? OR TRI CALCIUMPHOSPHAT?
L9 76012 SEA SPE=ON ABB=ON PLU=ON L5
L10 QUE SPE=ON ABB=ON PLU=ON CALCIUM OXID? OR CALCIUMOXID?
OR CAO
L11 25753 SEA SPE=ON ABB=ON PLU=ON L6
L12 QUE SPE=ON ABB=ON PLU=ON PHOSPHOROUS PENTOXID? OR
PHOSPHOROUSPENTOXID? OR PHOSPHORIC PENTOXID? OR PHOSPHORIC
PENTOXID? OR PHOSPHORUS PENTAOXID? OR PHOSPHORUSPENTAOXID?
OR P2O5
L13 230 SEA SPE=ON ABB=ON PLU=ON L7 AND L9 AND L11
L14 1129 SEA SPE=ON ABB=ON PLU=ON L4/P
L15 28 SEA SPE=ON ABB=ON PLU=ON L14 AND L13
L16 15 SEA SPE=ON ABB=ON PLU=ON L15 AND PHARM?/SC,SX
L17 142 SEA SPE=ON ABB=ON PLU=ON L13 AND PHARM?/SC,SX
L18 QUE SPE=ON ABB=ON PLU=ON BIOMATERIAL? OR ORTHOPEDIC? OR
DENTAL? OR BONE REPLACE? OR SPINAL REPAIR? OR COSMETIC? OR
SURGERY? OR BONE REMODEL?
L19 39 SEA SPE=ON ABB=ON PLU=ON L17 AND L18
L20 320 SEA SPE=ON ABB=ON PLU=ON L7(5A) (POROS? OR POROUS?)
L21 1 SEA SPE=ON ABB=ON PLU=ON L20 AND NET(A) SHAP?
L22 0 SEA SPE=ON ABB=ON PLU=ON L20 AND L19
L23 280 SEA SPE=ON ABB=ON PLU=ON L20 AND PHARM?/SC,SX
L24 2 SEA SPE=ON ABB=ON PLU=ON L23 AND L9 AND L11
L25 53 SEA SPE=ON ABB=ON PLU=ON L16 OR L19 OR L21 OR L24
L26 33 SEA SPE=ON ABB=ON PLU=ON L25 AND (1840-2003)/PRY,AY,PY
L27 224 SEA SPE=ON ABB=ON PLU=ON L8 AND L10 AND L12
L28 129 SEA SPE=ON ABB=ON PLU=ON L27 AND PHARM?/SC,SX
L29 39 SEA SPE=ON ABB=ON PLU=ON L28 AND L18
L30 26 SEA SPE=ON ABB=ON PLU=ON L29 AND (1840-2003)/PRY,AY,PY
L31 5 SEA SPE=ON ABB=ON PLU=ON L30 AND (POROS? OR POROUS?)
L32 0 SEA SPE=ON ABB=ON PLU=ON L30 AND NET(A) SHAP?
L33 QUE SPE=ON ABB=ON PLU=ON FORM? OR MOLD? OR MOULD? OR
SHAP? OR EXTRUD?
L34 11 SEA SPE=ON ABB=ON PLU=ON L30 AND L33
L35 14 SEA SPE=ON ABB=ON PLU=ON L31 OR L32 OR L34
L36 40 SEA SPE=ON ABB=ON PLU=ON L26 OR L35